DEPARTMENT OF AGRICULTURE
AUG 21 1893

L I S T OF P L A N T S
collected by P. A. Rydberg, in the summer of 1892 in the

B L A C K H I L L S
of
SOUTH DAKOTA.

481. Clematis ~~douglasii~~, ~~Hook.~~, ~~var.~~ scottii, (Porter) ~~Coulter~~. Very unlike specimens under this name, in Dr. Bessey's herbarium, collected by Lemmon in North Arisona, in 1884, which, undoubtly, belong to C. douglasii, and not to ~~the variety~~ scottii. The sepals of my specimens are rather more hairy than those of true specimens of C. douglasii, in the Herb. U. of N.), which is contrairy to the statement of Coulter in his manual.- On hill sides near Hot Spring June 1 & 17; in fruit: Aug. 9.

482. Clematis liguisticifolia, Nutt.- In canons among the foot hills. - Hot Springs, August 2.

483. Clematis liguisticifolia, Nutt. var. - A form with large (~~2-3 inches~~ 5-7 dm long) and, dullish leaflets, and very long (6-9 in. 15-22 cm) and slender peduncles. ~~Only 3 specimens secured~~ on the very steep sides of Hot Spring Canon, near the Chautauqua grounds, Aug. 3.

484. Clematis alpina, Mill. var. tenuisecta, (?) The C. alpina Mill., var. occidentalis, Gray, is described as having glabrous carpels. In all my specimens, the carpels are silky. The also differs from specimensin the Herb. U. of N.) of C. alpina, Mill., v ochotensis, collected by C.C.Perry in Colorado, and of C.alpina, v. occidentalis, Gray, collected by Kelsey in Montana, in having more delicate stem, smaller and more lobed leaves with more rounded lobes and sinuses, longer lanceolate sepals, and silky akenes. The same form has been collected by Dr. Chas. E. Bessey, at Manitou, Col. This little Clematis is named C. douglasii in Albums of Black Hills' Flowers, sold in the shops of Deadwood. The silkyness of the akenes is, very likely, the cause for this error. -// Here and there in the canons of the Black Hills propre. - Near Piedmont, June 27: Lead City, July 6; Bull Springs, in the lime stone distrct west of Custer, July 27. It may be the same plant, as Dr. Gray describes, in the Geological ~~Report~~ Survey Report of the Black Hills as C. alpina, var. occidentalis, form tenuisecta.

485. Pulsatilla patens, (L.) var. Nutalliana, Gray. Common in the Hills. - Custer, May 28 & 31; June 4.

486. Anemone multifida, Poir. - Not uncommon in the northern hills Elk Canon, June 29; Lead City, July 4; Rochford, July 11.

487. Anemone cylindrica, Gray. In the northern hills. Some plants have some of the peduncles with secondary involucres, approa C. multifida or C. virginiana in general appearance. - Hermosa, June 21; Lead City, July 6; Rochford, July 11.

)No 1-480. are the numbers of the plants contained in my Western Nebraska collection, Abronia micrantha being added as No 480.

) Herb. U. of N. - means The Herbarium of the University of Nebraska.

488. Anemone ~~virginiana,~~ cylindrica L. ~~It is not given~~ in Coulter's Manual, which is supposed to take in the territory west of the 100-th meridian. -, Very rare. - Elk Canon, June 29.

489. Thalictrum purpurascens, L. - In canons among the foot hills. - Hot Springs, June 18; Elk Canon, June 29.

490. Thalictrum occidentale, Gray.(?) - The specimens are to young for identification. No specimens in fruit were seen, as I was not in that part of the hills, except in the springs The foliage is very like that of T. occidentale in the Herb. U. of N., collected by Macoun on Vancouver Island, and also that in Trelease's revision, and agrees well with the description of T. occidentale. If I am correct, the range of that species is to be extended to include the Black Hills also. - Elk Canon, June 29.

491. Thalictrum venulosum, Trelease. - The only specimen in fruit, collected near Bull Springs, seems to be a typical specimen of Treleases species. The young specimens from Little Elk have larger and thinner leaves, approaching T. dioicum or T. fendleri. - Elk Canon, June 29; Bull Springs, in the lime stone district, west of Custer, July 27.

492. Ranunculus aquatilis, L., var. . . . . It is like the var. trichophyllus,Gray, but the leaves are mostly sessile, and only a little colapsing. - In brooks: Amphibious Creek, near Buffalo Gap, June 21; Rapid Creek, June 25; Little Elk Creek, June 28.

493. Ranunculus cymbalaria, Pursh. Around springs, common. - Hot Springs, June 10.

494. Ranunculus ~~affinis,R.Br., var. validus~~ cardiophyllus, Gray. ~~This is not~~ given in Coulter's Manual. Hence the range is extended. The petals are broadly obovate, large, in my specimens, bright yellow. - Custer, June 4; Rochford, July 11.

495. Ranunculus rhomboideus, Goldie. - Not uncommon in shady places. - Custer, May 28. The petals in this are oblong, somewhat rhombic. Some specimens approach somewhat the preceding.

496. Ranunculus abortivus, L. var. . . . . Very slender, flowers half the size of the common form, leaves smaller, very thin akenes fewer. Very unlike the form common in Eastern Nebraska, but specimens of the next number connect the two. - Elk Canon, June 29.

497. Ranunculus abortivus, L., var. . . . . Slender, leaves thin. In a canon, north of Runkels, June 30.

498. Ranunculus sceleratus, L. - Near creeks, in the foot hills - Piedmont, June 27; Elk Creek, June 29; Rochford, July 11.

499. Ranunculus pensylvanicus, L.f. - Wet places, common. - Lead City, July 6; Custer, July 15.

500. Ranunculus hispidus, Hook. - Not given in Coulter. Very common throughout the hills. Hot Springs, June 15; Hermosa, June 23; Lead City, July 6.

501.Aquilegia canadensis, L. - Rapid City, June 25; Little Elk, June 28; Rochford, July 6.

502. Aquilegia canadensis, L., var. formosa,(Fish.) Cooper. - Taller, more glaucus, sepals twici the length of the petals, spur o shorter than in the typical A. canadensis. To me, however, it does not seem to be different enough to be separated from A. canadensis. - Elk Canon, June 29.

503. Aquilegia sp. . . . It may be a form of A. brevistyla,(Gray) Hook., which it resembles in having the spurs hooked at the tip, and the petals exceeding the stamens; but it is much more than 6-8 inches high, has nearly an inch long flowers, with blue sepals and spurs and yellow petals, and is not spreading. The full description would read as follows:

Stem upright, 1-2 feet high, slightly hairy, the peduncles and the pods minutely glandular; leaves 2-ternate, leaflets broadlt obovate, 1-1 1/2inch long; sepals (6"+) oblong- lanceolate, blue, of the length of the petals; Petals light yellowish with blue curved spurs, together with these nearly an inch long, and of about the length of the stamens and the styles or a little longer. - In dark woods, rare. Little Elk, June28; Oreville, July 16.

504. Delphinium menziesii, DC.Reported for Wyoming: hence the range is extended eastward. - Hill sides: Custer, June 3; Aug.1; Rapid City, June 25; Elk Canon, June 29.

505. Delphinium mentziesii, DC., var. bicolor,Nutt. = nelsonii Wats - More slender than preceding and blooming a month later. The petals are thinner and the leaves firmer. Hairy and smoth specimens grew together. The smoth ones agree with the description of D. bicolor. If anything else, I believe,it is nothing but a form of preceding number. - Hill side north of Runkels, June 30. One specimen pinkish.

506. Aconitum fisheri, Reich. var. / A. columbianum, Nutt. is, according to Regel and Watson the same as the Siberian A. fisheri, which is the older name. The common American form is tall, 3-5 feet high, robust, quite pubescent and ~~hispid~~ viscid. - Near Terry's Peak, on the rail road bank, July6; Rochford., July 12.

507. Aconitum fisheri, Reich. Specimens collected among moss, below Sylvan Lake, 6 miles NNE of Custer, are, however, I think more like the Sibirian plant. These specimens are more slender, 1-2 feet high, few-flowered, much less pubescent, finer lobes to the leaves, and bluer flowers?. - Sylvan Lake, July 18.

508. Actaea spicata, L. var. rubra,Ait. - Only one specimen preserved from Elk Canon, June 29.

509. Actaea spicata, L. var. arguta, Torr. - The white fruit I saw were larger and more elongated than the red ones. I also saw some specimens with spatulate petals. - Little Elk, June 28; Sylvan Lake, July 18; East of Custer, August 15.

BERBERIDACEAE.

510. Berberis repens, Lindl. In canons: Hot Springs, June 12. The specimens of this locality were more or less damaged by rust. Little Elk, June 28.

PAPAVERACEAE.

511. Argemone platyceras, Link & Otto. - In draws, among the foot hills. Hermosa, June 24; 15 miles east of Custer, July 23.

FUMARIACEAE.

512. Corydalis aurea, Willd. - Rare; Elk River, on the rail road bank, June 29.

513. Corydalis curvisilica, Eng. - It is given in Coulter's Manual for Colorado and northward. The range is, hence, extended to the Black Hills, where it is not uncommon. Sylvan Lake, June 8; Hot Springs, June 13.

NYMPHAEACEAE.

Nymphaea advena,(Ait.) - Leaves of this was seen in Rapid Creek, 6 miles above Rapid City; but no specimens were preserved.

CRUCIFERAE.

514. Draba caroliniana, Valt., var. micrantha, Gray. - Not reported for the region. - Barren hills; Hot Springs, June 13.

515. Draba nemorosa, L. - Early in the spring; Custer, June 1.

516. Draba aurea, Vahl., var. stylosa, Gray. - I refer this to Draba aurea, of which there is no specimen in the Herb. U. of N., as it is stellate rather than villose; and to the variety, as the style is evident. The stem leaves, however are all sessile, oblanceolate or oblong, very thin; the peduncles and pedicels ciliate; the flowers of about half the size of those of D. streptocarpa of Perry's Rocky Mountain plants, and of a lighter color; the pods lance-linear, twisted, much longer than the pedicels. - Slvan Lake July 18.

517. Arabis perfoliata, Lam. - Rare, along the rail road in Elk Canon, June 29.

519. Arabis hirsuta, Scop. - Common, Custer, May 30; June 3; Hot Springs, June 13; Unusually slender specimens in Elk Canon, June 29

519. Arabis holboellii, Hornem. The flowers, however are seldom reflexed and mostly purplish; the pods are reflexed. - Common. C Custer, June 5; Elk Canon, June 29; Lead city, July 6.

520. Arabis sp. - About one foot high, branched; rootleaves oblanceolate or spatulate, petioled; stemleaves sessile, lanceolate, half clasping with the sagittate base; pubescence grayish strigose, somewhat stellular; flowers small, whitish; pod slender, reflexed, without style, pedicels cinerascent. Only a few specimens found in Elk Canon, June 29. It may be a form of A. holboellii, together with which it grew.

521.Stanlya pinnatifida, Nutt. - On the prairie, one mile east of Fall River Falls, June 18. There are no specimens in the Herb. U.of N.

522. Erysimum asperum, DC. Hot Springs, June 14; Hermosa, June 23; Rapid City, June 26.

523. Erysimun asperum, DC. var. A form with slemder, curved and twisted pods. - On the hills, north of Deadwood, July 5.

524. Erysimum cheyranthoides, L. - Hot Springs, June 14; Rochford, Julyll.

525. Erysimum parviflorum,Nutt. - My specimens do not agree with the description in Coulters Manual, but with that in Gray's; and that of E. asperum,DC. var. inconspicuum in King's Report. Very

likely it is a hybrid between E. asperum and E. cheyrantoides, as itkwas growing together with the two. The pubescence is more like that of E. asperum: the size of the flowers is intermediate: the form and color of the flowers and the form of the pods are like those of asperum; but the general habitus is that of cheirantoides - Hot Sprimgs, Junel3.

526. Sisymbrium canescens, Nutt. - Hot Springs, June 14.

527. Sisymbrium incisum, Eng. - I do not believe that this is specifically distinct from the preceding, as the two forms were growing together. I have selected out the glandular forms, with the seeds mostly in one row, but neither character is constant. - Hot Springs, June 14.

528. Brassica sinapistrum, Bois. - On the rail road bank, at Buffalo Gap, June 21,

529. Brassica alba, (L.) Gray. - Together with the preceding, Buffalo Gap, June 21.

530. Nasturtium palustre, L. - Rare in the Hills. - Rapid City, June 26.

531. Nasturtium officinale, R.Br.- Fall River, near the Chautauqua grounds, above Hot Springs, June 14.

532. Nasturtium officinale, R.Br. var. . . . . Very low, creeping, extensively rooting; leaves very fleshy; leaflets 0-1-2 p pairs, small; the odd leaflet larger, nearly orbicular; pod shorter and thicker than in the type. - In the warm water only, at Hot Springs, June 14.

533. Lesquerella sp. . . . . Dansely stellate, much branched from the perannial caudex; Radical leaves broadly spatulate- oblanceolate; stem leaves linear-oblanceolate; stems one span high; pod sub-globose, more or less pointed; stellate with long style. T The pedicels are curved as in L. ludoviciana, which it resembles, although it is much more slenderand more branched. It agrees with the description of L. globosa, but it is, evidently, a perennial. In a very few specimens , the pods are a little elongated. It may a also be a form of L. montana. - Hill sides, Hot Springs, June 11.

534. Lesquerella Sp. . . . . Like the last, but lower; pod stellate, ovate, pointed, and slightly compressed abe towards the end, about the length of the slender style, but much shorter than the upwards curved pedicel. It seems to be intermediate between L. alpina and L. montana. From the first, it differs in having more elongated and more leafy stems, broader leaves, and less compressed and shorter pods: from the latter, in in being more delica te, in having longer pedicels and compressed pods. - Dry hill top, north of Deadwood, July 5.

535. Camelina sativa, Crantz. - Rail road bank, above Custer, July 15.

536. Bursa pastoris, Wigg/ (in 1780.). The name Capsella was given to the genus in 1792, by Medius.- Yards, Custer, June 4.

537. Bursa pastoris, Wigg. form. integrifolia, - Slender, with all leave sentire. - Hill side, Central City, July 3.

538. Bursa pastoris, Wigg., var. . . . . Delicate, root leaves pinnatifid; divisions broadly oblong, sometimes sinuately touth; stem leave sfew,lanceolate; pods (immature) broadly oval, sometimes truncate, but not at all triangular. The general appearance remins somewhat of Thesdalia nudicaulis. - Hill side, south of Custer, May 28.

539. Lepidium incisum, Roth. - According to O.K., this is the older name for L. intermedium, Gray. - Rare in the Hills. Hot Springs, June 16.

CAPPARIDACEAE.

540. Polanisia trachysperma, T.& G. - Draws, among the foot hills, Hot Springs, ~~July~~ 14August 2.

541. Cleome integrifolia, T.& G.- C. serrulata, Pursh, published in 1814, seems to be the the older name, asC. integrifolia was published first in 1838. - Draws among the foot hills. Hot Spring August 2.

CISTACEAE.

542. Helianthemum canadense, Michx. It is not given in Coulter's Manual. The range is extended westward. - Road side , east of Custer, July 2?.

VIOLACEAE.

543. Viola pedatifida, G.Don. - Valleys; Custer, June 4.

544. Viola palmata, L., var. cucullata, (Ait.) Gray.- Low ground; Ruby Gulch, near Custer, May 31.

545. Viola palustris, L. - Only four specimens in fruit were found near Sylvan Lake, 6 miles N.E.E. of Custer? July 20.

546. Viola blanda, Wild. - Among moss, in the canon below Sylvan Lake, June9.

547. Viola canina, L. var. adunca, (Smith.) Gray. - Borders of rich woods, early in spring. South of Custer, May 30.

548. viola canina, L. var. silvestris, Regel. Only one specimen found near Lead City, July 6.

549. Viola canadensis, L. - Common. Little Elk, June 28; ElkC Canon, June 29; Rochford, July 11.

550. Viola Nuttallii, Pursh. - Prairies and rich vallies. - Custer, June 3; Hot Springs, June 12.

551. Viola puboscens, Ait. - Rare. Elk Canon, June 29.

552. Viola puboscens, Ait. var. scabriuscula, Gray.- This form has nearly allways, one or more radical leaves, and smaller and thinner stipules than the type. Elk Canon, June 29.

~~555~~. POLYGALACEAE.

553.Polygala senega,L. var. latifolia, T.& G. - It is not given in Coulter's Manual; but is not uncommon in the northern Hills. - Elk Canon, June 30; South of Lead City, July 6; Near Bull Springs, in the lime stone district, July 26.

554. Polygala alba Nutt. - Hills below Hot Springs, June 17; 15 miles east of Custer, July 22.

miles

555. Polygala verticillata L. - 15 miles east of Custer, July 22.

556. Saponaria vaccaria, L. - On the rail road bank south of Minnekahta, August 4.

557. Silene antirrhina, L. - Vary variable. One specimen has broad leaves and minutely pubescent stem, and is three feet high Some are only a few inches high and wholly glabrous. Hermosa, June 22; Lead City, July 6; Custer, August,1.

558. Lychnis parryi, Wats.(?) - There are no specimens of L. parryi in the Herb. U.of N., but my plant resembles L. elata, Wats, except in having narrower leaves. In fruit only, near Custer, August 16.

559. Cerastium nutans, Raf. var. . . . Tall, 15-18 inches; leaves large, 1-2 inches long and 4-6 lines wide, oblong, oval lanceolate, or spatulate. - Rapid City, June 25; South of Lead City, July 6; Rochford, July 11.

560. Cerastium nutans, Raf. var. . . . . Tall, about 8-12 inches; leaves broad, about 1 inch long and 4 lines wide, oval or broadly oblong. - Lead City, July 6. Custer, June 4.

561. Cerastium nutans, Raf. var. . . . . Small and slender,3-6 inches high; leaves small, 4-6 lines long, ovate or obovate. - Hermosa, on poor soil, June 22; Lead City, July 6.

562. Cerastium arvense, L. Rarer than the next. - Elk Canon, June 29; Lead City, July 6.

563. Cerastium arvense, L. var. oblongifolium. (Torr.) Britt. - Custer, May 31; Hot Springs, June 18; Elk Canon, June 29.

564. Stellaria longifolia, Muhl. - Grassy places, near water., below Terry's Peak, July 8; near Sylvan Lake, July 18.

565. Arenaria franklinii, Dougl. - The sepals are unusually narrow and only a little scarious, and some of the leaves much over one inch long. Battle Mountain, east of Hot Springs, June 18.

566. Arenaria sp. . . . . I have not been able to determin neither this nor the next. Both belong to the section Alsine; both are branched from the root, have ovate lanceolate, acute sepals, which exceed the petals. A fuller description of this is as follow

Branched from the root; branches long (6-9 in.), slender, ascending or spreading; leaves narrowly linear, 1-nerved, obtuse, about an inch long, somewhat fascicled below; cyme diffuse, sepals ovate lanceolate, acute, 3-nerved, a little exceeding the petals, one third shorter than the capsule. - Elk Canon, June 29; Little Elk, June 28.

567. Arenaria sp. . . . . - Branched from the root, very delicate; branches 3-4 inches high, 1-2 flowered; the lower leaves linear subulate; the upper ones oblong lanceolate, 3-nerved; sepals ovate lanceolate, acute, 3-nerved, 1/3 longer than the petals, and a littleshorter than the pods. - Shady place among the rocks, below Sylvan Lake, July 18.

568. Arenaria lateriflora,L. - Shady woods: Elk Canon, June 29; Sylvan Lake, July 18.

569. PORTULACCACEAE.

569. Talinum teretifolium,(Raf.) Pursh. - Among rocks; on the south side of Buck Horn Mountain, July 15.

570. Claytonia perfoliata, Don. var. . - A small form, with smaller flowers and shorter peduncles, the same as was collected by Dr. Vasey in the State of Washington, in 1883. - Hills near Whitewood, July 7.

ELATINACEAE.

571. Elatine americana, Arn. - Spring, near Buck Horn Mountain, July 15; Brook, 4 miles west of Custer, July 25.

HYPERICACEAE.

572. Hypericum canadense,L. ~~var. majus, Gray~~. - This is not given in Coulter. - Low ground, north of Custer, August 20.

573-579. - These numbershappened to be omitted, in labelling. They will be used further on.

MALVACEAE.

580. Malveopsiscoccinea, (Nutt.) O.K. - The genus Malveopsis Presl. was published in 1844, Malvastrum Gray. in 1849. - Hillside above Hot Springs, June 14.

LINACEAE.

581. Linum perenne, L. var. lewisii,(Pursh.) Eat.& Wright.Hill sides; Hot Springs, June 14; Elk Canon, June 29; Rochford, July 12; Custer, July 15.

582. Linum rigidum, Pursh. - Rare: Hot Springs, June 15.

GERANIACEAE.

583. Geranium richardsonii, Fish.& Mey. - The most common geranium in the Hills. The flowers are nearly always white or light pinkish with purple veins. Everywhere in the valleys: Elk Canon, June 29; Rochford, July 11; Sylvan Lake, July 21.

584. Geranium incisum, Nutt. - Flowers dark purple. It is rar , except in the lime stone district west of Custer, where it is very common. - Rochford, July 11; Bullsprings, July 27.

585. Geranium carolinianum,L. Elk Canon, June 29; Whitewood, July 7; Custre, July 15.

586. Oxalis stricta,L. - Shady places among the foothills: Rapid Creekm June 25; Elk Canon, June 29.

CELASTRACEAE.

587. Celastrus scandens, L. - Erect, 3-4 feet; nowhere did I find it climbing. - Rapid City, June 25; Little Elk, June 28; Lead City, July 6.

RHAMNACEAE.

588. Ceanothus velutinus, Dougl. - Not uncommon around Lead City, July 4.

589. Ceanothus ovatus, Desf. - The common peduncles, in most cases, are elongated. - Little Elk, June 28; Elk Canon, June 29; South of Lead City, July 6.

cases, are elongated. - Little Elk, June 28; Elk Canon, June 29; South of Lead City, July 6.

590. Ceanothus fendleri, Gray. - Reported for Colorado and southward, is common in the lime stone district, west of Custer, around Bullsprings, July 26.

VITACEAE.

591. Vitis riparia, Michx. - Hermosa, June 24; Little Elk, June 28; Elk Canon, June 29.

592. Ampelopsis quinquefolia, Michx. - Elk Canon, June 29.

ACERACEAE.

593. Acer negundo, L. - In fruit, Hot Springs, June 18.

ANACHARDIACEAE.

594. Rhus toxicodendron, L. - In the foothills: Hermosa, June22

595. Rhus canadensis, Marsh. var. trilobata, Gray. - I found stems 8-9 feet high and 3 inches in diameter, and with leaflets fully one and a half inch long. Hot Springs, June 11, and August 8.

PAPILIONACEAE.

596. Thermopsis rhombifolia, Rich. - Common: Custer, June 2; in fruit: Hermosa, June 23.

597. Lupinus leucophyllus, Dougl. -- It agrees well with the description of this species. Sometimes, however, the standard is nearly glabrous. - Elk Canon, June 29; near Bullsprings, in the lime stone districts, July 27.

598. Lupinus parviflorus, Nutt. - There are no specimens of it in the Herb. U.of N., but it agrees well with the description, although it seems to be out of it range. - Little Elk, June 28; Elk Canon, June 29; Lead City, July 4; Bullsprings, July 28.

599. Lupinus pusillus,Pursh. - Hills near Fall River Falls, June 17. It is not found in the Black Hills proper.

600. Trifolium pratense, L. Meadows: Amphibious Creek, near B. Buffalo Gap, June 21; Hot Springs, August 2.

601. Trifolium repens,L. - Custer, August 1.

602. Hosackia purshiana, Benth. - Hills near Whitewood, July 7.

603. Psoralea tenuiflora, Pursh. - In the foot hills, 15 miles east of Custer, July 23.

604. Psoralea argophylla, Pursh. - Rochford, July 12; Custer, July 15; Hot Springs, August 8.

605. Psoralea cuspidata, Pursh. - Among the foot hills: Fall River Falls, August 10.

606. Psoralea esculenta, Pursh. - The specimens from Lead City are low, 3-4 inches high, with obovate leaflets and whitish flowers Hot Springs, June 18; Hermosa, June 23; Lead City, July 4; Roch-

ford, July 12.

607.Dalea laxiflora, (Poir.) Pursh. - Among the foot hills: Hot Springs, August 2.

608. Dalea aurea (Poir.) Nutt.- Also among the foot hills: Hot Springs, August 2:

609. Amorpha canescens, Nutt. - Hills, 15 miles east of Custer, July 22; Hot Springs, August 2.
Amorpha fruticosa, L. was growing along French Creek and Fall River, but no specimens were collected.

610. Petalostemon violaceun, Michx. var. / . .- My specimens approach, more or less, the form with very villous calyx, which has been named P. tenuifolium by Dr. Gray.- Lime stone district, July 27; Hot Springs, August 2.

611. Petalostemon violaceum, Michx. f. albiflora. - Flowers white. - Hot Springs, ~~Ju~~ August 3.

612. Petalostemon multiflorum, Nutt. var. . . . . The heads are more or less cylindrical. It is the same as No. 58b. of my collection from Western Nebraska. P. multiflorum differs principally from P. candidum in having much smaller, subulate, sub-desiduous b bracts, and a much more delicate habitus. In the specimens, collet ed at Hot Springs, August 2, the stems are upright, the leaflets oblong, acute or obtuse.

613. Astragalus caryocarpus, Ker. - Nearly all my specimens from the Black Hills, have large (about 9 lines long), ochroleucous flowers, purplish only at the tip; but, without any doubt, they all belong to A. caryocarpus. - Custer, May 31 - June 4.

614. Astragalus sp. . . . . General appearnce somewhat like A. caryocarpus, but more upright, ascending; racemes elongated (6 inches long); flowers distant; bracts oval lanceolate; pedicels and flowers nearly upright; pedicels about 2 lines; calyx apressed hairy with dark hairs; Corolla dark purple; fruit unseen. - Only one plant found in bloom, on Battle Mountain, east of Hot Springs, June 18.

615. Astragalus plattensis, Nutt?- Not uncommon in the southern part of the Black Hills. - Hot Springs, June 13; August 3.

616. Astragalus canadensis, L. - Rochford, July 12; Along French Creek, 15 miles below Custer, July 23.

617. Astragalus adsurgens, Pall. - Common: Hot Springs, June 18; Hermosa, June 22; Custer, July 15.

618. Astragalus hypoglottis, L. - Not uncommon among the foot hills: Hot Springs, June 14; Hermosa, June 22.

519. Astragalus drummondii, Dougl. - Hills near Hot Springs, June 18.

520. Astragalus racemosus, Pursh. - The corolla is ochroleucous rather than white, and theangles of the pods are blunter than in the Nebraska specimens collected last year. Near Fall River Falls, June 17.

621. Astragalus microlobus, Gray.- Hot Springs, June 15.

573. Astragalus gracilis, Nutt.- Hot Springs, June 15. This species was omitted, when labelling. See page 8.

622. Astragalus aboriginum (Hook.) Rich.(?) - Branching from the perennial base, ascending, finely villous; Leaflets 5-7 pairs linear oblong, acute; stipules membranaceous, the lower ones connate; racemes longer than the leaves, many-flowered; pedicels short; calyx dark hairy; lobes subulate; ~~corella 3 lines long, ochroleuceous, keel purpod~~ membranaceous, 5-7- ovuled, long stipitate, dorsal suture straight, ventral curved. - In fruit north of Deadwood, July 5.- The pod is stictly one celled , but the dorsal suture a little inflexed. Still I believe this to be A. aboriginum, which has been reported for the Black Hills. If so, the next will be

623.Astragalus glabriusculus, (Hook.) Gray, or, perhaps, rathr A. aboriginum var. glabriusculus, as I am inclined to regard this as a variety of the preceding. Very like the preceeding, but smoth: The pods are a little more curved ; the flowers ochroleucous with the keel tipped with purple.It has been distributed, in fruit, by C.C.Perry as A. scropulorum porter, but does not agree with the description of that species, especially not as to the podswhich are as well in Perry's specimens as in mine not at all triangular, and plainly one celled. - In flowers: Custer, June 1; In fruit: Rochford, July 12; Lime stone district, July 26.

624. Astragalus alpinus L. - In the woods: Custer, June 3; Little Elk, June 28; Near Lead City, July 6; Rochford, July 11;

625. Astragalus lotiflorus, Hook. Flowers all racemed; peduncle of about the length of the leaves. The specimens from my collection in Western Nebraska, in 1891, named A. pubentissimus, belong here, although they differ in having the flowers subsessile, in being annual or biennial, and in having fewer and larger leaflets. Rev.J.M.Bates of Valentine, Neb. has collected, at Long Pine, Neb., specimens that are very villous, with extreemly hairy pods. Hot Springs, June 16.

626. Astragalus missouriensis, Nutt. - Among the foot hills: Hot Springs, June 13.

627. Astragalus missouriensis, Nutt., var. . . . Sem not cespitose, ascending, less hairy; leaflets larger, obovate; flowers racemose or sub-capitate on a long peduncle. General appearance, c color of the flowers, &c.more resembling A. adsurgens, but the heads are more lax, the leaflets broader, and the plant evidently hairier. The pubescence (although sparser) is that of A. missouriensis; so is also the pods. It, may be, is a hubrid between the two which grew together with it. - Hermosa, June 23.

628. Astragalus frigidus (L) Bunge. var. americanus (Hook.) Wats - My specimens have the flowers light ochroleucous and the pods smoth.- Low ground, in shade: Rochford, July 12.

629. Astragalus bisulcatus (Hook.) Gray. Plains among the foot hills: Hermosa, June 23.

630. Astragalus flexuosus, Dougl. - Myspecimens are very large and decumbent. - Rochford, July 12.

631. Astragalus sp. . . . . Somewhat like the last, but upright, graish puberulent; leaflets about 8 pairs, linear oblong; racemes slender, longer the leaves; corolla ochroleucous, 2 lines long; pods as in the preceeding, pendent, minutely hoary. - Bull springs, July 29.

632. Astragalus multiflorus (Pursh.) Gray. - Near Bullsprings, July 28.

633. Astragalus caespitosus (Nutt.) Gray. - Hot Springs, June 13; Bull Springs, July 27.

634. Astragalus caespitosus (Nutt.) Gray. f. trifoliata. Some of the leaves 5-2-foliate, showing the true nature of the leaves of the common form, viz. their being reduced. - Bull Springs, July 28.

635. Astragalus triphyllus, Pursh. - Foot Hills: Hot Springs, June 18.

636. Oxytropis viscida, Nutt. - The flowers in all my specimens are ochroleucous. - Common around Custer, June 5.

637. Oxytropis sp. . . . . - Like the preceeding, but has larger flowers (about 3/4 in. long) and larger leaflets (about 1/2 1/2 in. long). The plant resembles O. lambertii var. sericea, of which I have not seen any yellow specimens, but the plants are decidedly viscid, and the bracts are narrower, nearly linear. Hot Springs, June 16.

638. Oxytropis lambertii - Hot Springs, June 18; Rochford, July 11.

639. Glycyrrhiza lepidota, Pursh. - On French Creek, 15 miles below Custer, July 22.

640. Hedrysarum boreale, Nutt. - In Coulter's Manual, the stamens are given as diadelphous (5 and 1), in Gray, it is given in th Kee as diadelphous (9 and 1), but in the description of the genus as 5 and 1. In all flowers I investigated, they were 9 and 1, but the unite stamens are of two different lengths, every other being shorter. - Hills: Rochford, July 12.

641. Vicia americana, Muhl. - Common: Little Elk, June 28; Elk Canon, June 29; Lead City, July 6.

642. Vicia truncata, Nutt. - Always near water, when americana and linearis are found also on dryer land. Hot Springs, June 13.

643. Vicia linearis, Nutt. - V. americana and this are growing together a little everywhere in Nebraska, but I have not seen any intermediate forms, and believe them to be distinct.- Hot Springs, June 16.

644. Lathyrus ochroleus, Hook. - Common, and very luxurious in the Hills. It is regarded as a very good fodder plant, and, may be of economic value. - Rapid Creek, June 25; Elk Canon, June 25.

ROSACEAE.

645. Prunus americana, Marsh. - Draws, among the foot hills.

Near Minnekahta, August 4.

646. Prunus pumila, L. var. . . . . .- Leaves obovate-oblanceolate, finely , but sharply serrate, except at the cuneate base, paler benith; fruit nearly an inch in diameter, when ripe not sour and astingent. May be distinct from the true P. pumila. - In the foot hills: Hermosa june 23; Near Minnekahta, August 4.

647. Prunus pensylvanica, L.f. - In the Black Hills, it never becomes a large tree. The largest I saw were less than 20 feet high. The leaves are narrow and finely serrate with roundish glandular teeth. On the hills around Head City, it becomes a smallshrub not taller than P. pumila, mostly with folded leaves. - Woods: Custer, June 4; Lead City, July 3 & 6.

648. Prunus virginiana, L. - Wholly glabrous; leaves dull, ovate with acuminate base, thin, sharply serrate. A low weekshrub; stem seldom erect, at most 3 in. in diameter. In damp, shaded canon near Hot Springs, June 13; Sylvan Lake, July 18.

649. Prunus demissa, Walp. - Glabrous, leaves oval with trunkate on even somewhat cuneate base, thick, paler benith. Dr. Sargent includes this in P. virginiana, fron which it differs in the much thicker leaves and sweeter fruit. Every where I have seen it, it is a small tree, that is, it has one principal stem, with a round crown, is much stouter than P. virginiana. My specimens belong to the same form as I collected in Western Nebraska (No. 90.) and as No. 134. of Dr. Palmer's Collection on Southern Utah and Northen Arizona. - Rochford, July 12:

650. Prunus demissa, Walp. var. . . . . Young shoots, peduncls and under side of the leaves pubescent, and even a little viscid, glabrate in age; leaves thick, shining above, paler benith, eliptical or broadly oval, abruptly pointed or obtuse; baes trunkate, slightly heartshaped, or sometimes somewhat cuneate; flowers large than in the two proceeding. A low shrub, generally a few feet high The largest stem I found was about 2 inches in diameter, with heart wood very dark, fully as dark as in P. serotina. If P. dpmissa is t to be included in P. virginiana, this is to go in there too. It was growing, however in the same canon as P. virginiana, and was-ea easily distinguished from the same. - Hot Springs, June 13& Aug. 8.

651. Spiraea betulifolia var. corumbosa (Raf.) Wats. Rapid City June 25; Little Elk, June 28; Lead City, July 6.

652. Spiraea caespitosa, Nutt- Neither flowers nor fruit were found, but the plant was growing on the hills of Little Elk Canon, June 28:

653. Physocarpus sp. . . . . 5-6 feet high; leaves heartshaped 3-lobed, 2 inches long, nearly glabrous, paler benith, calyx pubescent; flowers of about the same size as those of P. opulifolia which it resembles except to the ovaries, which are only 2 or 3 and wolly, fruits inflated, pubescent, twice the length of the calyx; seeds obliquely pear shaped, shining, carinate on one side. It may be Nellia torryi of Watson, but it is not P. monogyna of Green. It is the same as Nellia opulifolia of C.C.Perry's North American Pacific Coast Flora, which also has hairy ovaries. - In the lower parts of the hills near water. Rapid Creek, June 25; French Creek, 10 miles below Custer, June 22; Hot Springs, August 2.

654. Physocarpus sp. . . . . Much shrubby, 1-2 feet hich; leaves small (1 inch),round in outline, deeply 3-5- cleft, teeth sharper than in the preceeding, flowers of half the size, ovaries mostly 2, very woolly; fruits slightly inflated, a little longer than the calyx. It may be a form of P. monogyna, but it does not fully agree with Green's description in Pittonia, Where the flowers of this are larger in any of the other species. The leaves are both to size, form, and color like the leaves of some of the goosberries. If it should happen to be an undescribed species, I would propose the name P. grossularifolia, ribifolia being preoccupied.- On barre hills near Harney Peak, July21, August 17.

655. Rubus nutkanus, Moç.- Not uncommon. - Elk Canon, June 29; Near Lead City, July 4.

656. Rubus triflorus, Rich. - Canon, north of Runkels, June 30; Lead City, July 4.

657. Rubus Strigosus Michx. - Little Elk, June 28; Elk Canon, June 29; Rochford, July 12.

658. Cercocarpus parvifolius, Nutt. - Vary rare? - Hot Springs, June 13.

659. Geum strictum, Ait. - Rapid Creek , June 25; Lead City, July 6; Rochford, July 11.

660. Geum triflorum (R.Br.) Pursh. - Common: Custer, May 28; Elk Canon, June 29; Lead City, July 4.

661. Fragaria virginiana, Duch. - A low, small leaved form, early in spring. - Custer, June 4.

662. Fragaria americana (Porter) Britton. - Custer, June 6; Hot Springs, June 14; Rapid City, June 25; - In fruit: Custer, August 20.

663. Fragaria americana (Porter) Britton., var. . . . . Leaves very thin, cuneate, narrow, 3 times as long as broad, toothed only towards the upper end, peduncles slender, about the length of the leaves. - Sylvan Lake,July 18.

664. Potentilla arguta, Pursh. - Flowers white, turning yellow in drying. - Hermosa, June 22; Lead City, July 6.

665. Potentilla glandulosa, Lindl. - Flowers yellow, cyme more diffuse, but the number of the stamens very variable. - Rochford, July 12.

666.Potentilla norvegica, L. - Hot Springs, June 14; Hermosa, June 22; Rapid City, June 25; Elk canon, June 29; Rochford, July 11. The specimens from the latter place are very slender , and approach P. rivalis.

667.Potentilla pensylvanica, L. var. strigosa, Pers. - Common: Hermosa, June 23; Rochford, July 11; Custer, August 13.

668. Potentilla hippiana, Lehm. - Rochford, July 12; Custer, July 18.

669. Potentilla hippiana, Lehm. var. pulcherrima (Lehm.) Wats.

The specimens from Custer are more stout and with dense cymes. - Hills: Lead City, July 4; Bull Springs, July 26; Custer, Aug. 13

670. Potentilla gracilis, Dougl. - Lead City, July 4; Rochfod July 12.

671. Potentilla gracilis, Dougl. var rigida, (Nutt.) Wats. - Only 3 specimens were secured at Rochford, July 11.

672. Potentilla nivea, L. var. disecta, Wats. - There is no specimens in the Herb. U.& N. Rare: Hot Springs, June 11.

673. Potentilla sp. . . . . - Near the preceeding; leaves 5-foliate, densely silky tomentose beneath, green above; leaflets 5-7-cleft; sepals and bractlets nearly equal as in P. argentea, from which it differs in its prostrate habit, its less dissected leaves and larger sepals and bractlets. - Custer, June 3; Hill, north of Deadwood, July 5. The latter differ somewhat from the former, probably depending upon the dry locality, and the fact that they they were damaged by rust.

674. Potentilla fruticosa, L. - Dry hills and mountain sides: Elk Canon, June 29; Rochford, July 12.

675. Agrimonia eupatoria, L. - Custer, July 18; Rochford, July12

676. Rosa engelmannii, Wats. - Little Elk, June 28; Lead City, July 4; Rochford, July 12; Custer, July 18, August 19.

677. Rosa woodsii, Lindl. - Sepals seldom lobed, but I believe that it is R. woodsii rather than R. fendleri, if the two are distinct. The fruit was not seen. - Hot Springs, June 17; Hermosa, June 24; Little Elk, June 27.

678. Rosa humilis, Marsh. (?) - This species is not found in the Herb.U.& N. I would have taken it for a low form of R. arkansana, but for the deciduous sepals. Only a few inches high. Dry rocky hill, near Hermosa, June 23.

679. Crataegus coccinea, L. var. macrantha, Dudley. - Among the foot hills: Hermosa, June 23; Canon north of Runkels, June 30

680. Amalanchier alnifolia, Nutt. - Leaves densely whit woolly below when young, but wholly glabrous when mature. - Common: In bloom: Custer, June 5: in unripe fruit: Hermosa, June 24; Elk Canon, June 29; Custer, July 15.

Pyrus (Sorbus) sambucifolia, Cham. & Schlecht.- Accordind to Mr. Runkel, an enterprizing lumberman, this is growing in a canon on the road from his sawmill, at Runkels, to Sturgis. I did not see any specimens.

SAXIFRAGACEAE.

681. Saxifraga cernua, L. - Shaded rocks, above Sylvan Lake, July 8.

682. Tellima parviflora, (Hutt.) Hook. - Rare: Custer, June 4; Hill, west of Lead City, July 4.

683. Heuchera hispida, Dougl. - Common: Hot Springs, June 8; Rochford, July 12.

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684. Heuchera parviflora Nutt. - Only one specimen secured at Rochford, July 12.

Heuchera pubescens has been collected by Miss Pratt, on the hills of Little Elk Canon, in 1891.

685. Parnassia parviflora D.C. - Near French Creek, below Custer, August 1.

686. Ribes setosum Lindl. var. - This agrees with the description of Ribes setosum in Don. Mill. III.177., except that the berries are rarely bristly. Dr. Gray says in the American Naturalist, vol.X.271:"The young berries either perfectly smoth and naked, or beset with a few bristly prickels." It has been named R. oxyacanthoides, or R. hirtellum, from which it differs in that the leaves are finely pubescent, the calyx cylindrical and longer than the lobes, the fruit being sometimes a little bristly and dark purple, exstremely sour even when ripe. It has been found in North Western Nebraska by Prof. Swezy od Doan College, Crete, Who was the first one that reconnized it as being R. setosum Lindl.This has been verified by Dr. Chas.E.Bessey, H.E.Webber,A.M., and myself. - Very common in the Black Hills. - Custer, May 29, in bloom Minnekahta, August 5, in fruit.

687. Ribes sp. . . . . - It may be a form of the preceding, but of a peculiar aspect. The leavess are deeper cleft, with acutish lobes, smoth and shining above, finely and sparingly pubescent below, in form resembling those of R. aureum. The flowers are as in R. setosum, that is, the calyx cylindrical, a little longer than the narrowly oblong calyx lobes; spines and bristles very rare and small; petioles ciliated by a few fine bristles. Immature fruit smoth, yellowish; mature fruit not seen. Take the leaves of R. aureum, the smoth stem of R.cereum, and the flowers and pubescence of R. setosum, - and the specimen is nearly complete. - Only two small bushes were seen in a shady place, below Sylvan Lake, July 18.

688. Ribes lacustre Poir. - In shady damp places, not common. South of Lead City, July 6; Sylvan Lake, August 17.

689. Ribes cereum Dougl.- In Coulters Manual and in the Botany of California, R. cereum is placed in a wrong division, as the calyx is tubular and the foliage glandular. In the Botany of California, the form of the calyx is given in the description of the species below, but in Coulter, this is omitted. Specimens of this collected in flowers, have, therefor been named R. sanguineum var. variegatum Wats. - Custer, May 30; Hot Springs, June 11; - In fruit: 15 miles east of Custer, July 23.

690. Ribes aureum Pursh. - In the Foot Hills: Hot Springs, June 11; Fall River Falls, June 17; In fruit: Hot Springs, Aug.3.

CRASSULACEAE.

691. Sedum stenopetalum Pursh. - It is nearly always more or less branched from the root, sometimes with quite many branches. - On rocky hills: Piedmont, June 27; Lead City, July 6; Buckhorn Mountain, near Custer, July 18.

ONAGRARACEAE.

692. Epilobium spicatum Lam. - Woody hills: Rochford, July 11; Sips, in the Limestone District, July 28.

693. Epilobium lineare Muhl. var. oliganthum (Michx.) Treleasa. - The leaves are often opposit, acutish, short petioled; but with out any veins. These characters make me believe that my specimens belong to the above variety, although the coma is purely white. In a marsh, near Pringle, August 6.

694. Epilobium sp. . . . . I can not determine this species. The stem, pubescens, and general groth are those of E. lineare, but the leaves are broader, not at all revolute, sparingly dentate, and with evident sidenerves. Probably, it is a hybrid between E. lineare and E. adenocaulon, together with which two it grow. - Pringle, August 6.

695. Epilobium adenocaulon Hauseknecht, var. - Branched, leaves small, dentete. The plant it like E. coloratum, but the coma is white. - Pringle, August 6.

696. Epilobium adenocaulon Hauseknecht, var. - Simple, leaves larger, oblong ovate, subsessile. - Rochford, July 11; Custer, July 14; Hot Springs, August 8.

697. Epilobium drummondii Hauseknecht.(?) - It agrees well with the description of this species in Trelease's Revision, except to the size of the plant, which sometimes reaches 2 fect in hight. - Rochford, July 12.

698. Epilobium sp. . . . . - Simple, glabrous or sparingly crisp hairy; leaves ovate lanceolate, sinuately toothed, sessile, half clasping; flowers white; seeds oblong, pappillate. It differs from E. halleanum in being smaller, not glandular, from this and from E. brevistylum in having the seeds narrowed abruptly into the short beak; from drummondii, in having broader, half clasping leaves. In the latter respect, it also differs from E. brevistylum and E. ursinum. - Sips, in the lime stone district, July 28.

699. Epilobium ~~saximontanum Hauseknecht~~ hornemanii Reichenb.(?) - Maybe, this is only a depauperate form of the preceding. - Sips, July 28.

574. Epilobium paniculatum Nutt - Custer, August 21.

700. Gayophytum racemosum T.& G. var. . - Capsule 4-5 lines, clavate; pedicels nearly of the same lenght; leaves over 1 inch long; seed 6-8. The plant is more branched than the specimens in U. of N. Herb., and approaching G. ramosissimum. - Hills: Rochford, July 12; Bull Springs, July 26.

701. Oenothera biennis L. (?) - The Oenothera commomn and, whithout any doubt, indigenious in the sand hill region of Western Nebraska, stands near Oenothera biennis, and I have not been able to find any character that will separate it from the same, and yet i it differs so much in general habitus , that I do not know what to think. It has the yellowish green color ofO. rhombipetala, and the simple and strict groth of the same, but lacks the large bracts peculiar to that species. - Rochford, July 11.

702. Oenothera biennis L. var. . . . . Like the last, but not strigose. Pubescence fine, silky, appressed; radical leaves many obovate, about one inch long; calyx tube inch and a half long; lobes linear lanceolate, 1/2 inch ; petals broadly obovate, truncate, 1/2 inch long; pod linear oblong, only a little narrowed upwards.) Custer, July 15.

703. OEnothera sinuata L. - Hot Springs, rare, June 14.

704. OEnothera pinnatifida Nutt. - Very variable. - Hot Springs, June 16; Hermosa, June 23; Custer, July 16.

705. OEnothera albicaulis Nutt. - Rare. - Broken soil; Custer, Juky 15.

706. OEnothera coronopifolia T.& G.- Sandy soil: Custer, June 4; Hot Springs, June 15.

707.OEnothera caespitosa - Battle Mountain, near Hot Springs, June 15.

708. OEnothera serrulata Nutt - Fall River Falls, June 17; Rapid City, June 25; Elk Canon, June 29.

709. Gaura coccinea Nutt. - Hot Springs, June 13.

710. Gaura coccinea Nutt. var. . . . . This is the same form that was collected by me in Western Nebraska, in 1891, and described under NO - Custer, July 15.

711. Gaura parviflora Dougl. - Hot Springs, August 2.

711. Gaura parviflora Dougl. - Hot Springs, August 2.

712. Circaea pacifica Acherson & Magnus.) Shaded, damp places below Buckhorn Mountains, July 16.

LOASACEAE.

713. Mentzelia ornata (Nutt.) T.& G. - Rare: Hot Springs, August 9.

714. Mentzelia nuda (Nutt.) T.& G. - Rare: Hot Springs, August 3.

CACTACEAE.

715. Cactus missouriensis (Sweet.) O.K.- Custer, June 4; Hot Springs, June 15.

716. Opuntia missouriensis Raf. - Hills, 15 miles east of Custer, July 23.

717. Opuntia fragilis Nav. - Plants only, collected nea Minnekahta, August 5.

UMBELLIFERAE.

718. Musenium tenuifolium Nutt. - Very variable in size, according to the locality. The specimens from Custer (Altitude 5500 ft) seem to be typical specimens, that is, like those from Western Nebraska. Those from Hot Springs (Alt. 3500 ft.), growing in a more shaded locality, among gypsum rocks, are larger with more striate scape. Those from the exposed granit rocks near Harney Peak(Alt. over 7000 ft.), are more tufted, very low and delicate. Custer, June 4 & August 1; Harney Peak, June 8; Hot Springs, June 13.

719. Musenium trachyspermum Nutt. - There are no specimens of this, nor of M. divaricatum in the U.of N. Herb., and I am in doubt to which of the two to refer my plants. They seem to agree well whith the description of the latter, but the plants as well as the unripe fruits are minutely scabrous, at least under the len

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720. Carum carui,L. - The ribs of the fruit have each a burdle of strongthening cells and a small oiltube as in Zizia, a fact that I have never seen pointed out. I had not on hand any good specimen of the carraway, and in those seeds I investigated i could find neither strengthening cells nor the small oiltubes mentioned above, wherefore I thought I had found something new. I sent a specimen to Proffessor Coulter, who pronounced it to be Carum carui L. Near a small brook, three miles north of Deadwood, July 5.

721. Zizia cordata, Koch. - Custer, June 2; Little Elk, June 28; Elk canon, June 29.

722. Berula angustifolia Koch. - Hot Springs, August 10.

723. Cicuta virosa l. var. maculata (L.) C.& R. - Little Elk, June 28.

724. Osmorrhiza nuda Torr. - Elk Canon, June 29; Lead City, July 6.

725. Osmorrhiza longistylis DC. - Elk Canon, June 29, Lead City, July 6; Hot Springs August 10.

726. Cymopterus montanus T.& G. - In fruit only: Hot Spring June 14.

727. Cymopteris glomeratus Raf. - Only one specimen was collected, while the train stopped at Edgemont, May 27.

728. Peucedanum villosum Nutt. - Vey common around Hot Springs, June 13.

729. Pastinaca sativa L. Rapid city, July 25.

730. Heraclsum lanatum Michx. - Rapid City, June 25; Little Elk, June 28.

731. Sanicula marilandica L. var. canadensis Torr. - Elk Canon, June 29; Lead city, July, 6.

ARALIACEAE.

732. Aralia nudicaulis L. - Little Elk , June 28; Elk Canon, June 29; Lead City, July 6; Custer, August, 15.

733. Aralia nudicaulis L/ - At one place in Little Elk canon all specimens differed from the usual form in being lower, the leaves being 8 in or l as long, while in the ordinary form, they are more than a foot; umbells 1-4 on erect branches, while in the ordinary form, they are more or less spreading, flowers larger and blooming before the leaves are fully develloped. Little Elk, June 28.

CORNACEAE.

734. Cornus canadensis L. - Lead City, July 4; Sylvan Lake, August 17.

735. Cornus baileyi Coulter. - Fruit not seen, but the pubescence of the peduncles is woolly, the woolly hairs on the lower surface of the leaves are evident; the leaves are narrower than in the next, and the bark of the branches is browner and pubescent.

Little Elk, June 28; Rochford, July 11.

736. Cornus stolonifera Michx - In fruit only. The bark is purplish red, the pubescence silky. - Sylvan Lake, August 17.

CAPRIFOLIACEAE.

737. Adoxa moscatellina L. - Only a few small specimens in buds were secured below Sylvan Lake, June 8/, and a few in fruit, badly damaged by rust, under a rock near Sips, in the Lime Stone District, July 28.

738. Sambucus racemosa L. - Three forms were collected of what I beleive to be Sambucus racemosa L. The first has this year's stem and the peduncles more or less roughish pubescent and warty, oblong lanceolate, long acuminate, closely serrate leaves, cyme manyflowered, roundish, as broad as long; mature fruit unseen. The cyme is that of S. melanocarpa; but the leaves are like those of S. racemosa in the herb. U. of M., and the flowers dull white, drying brownish. Canon, north of Runkols, July 30; Custer, July 14

739. Sambucus racemosa L/ var. - This years stem and peduncles perfectly smoth and light colored, leaflets ovate lanceolate with shorter acumination, and more like those of S. nigra and S. canadensis; cyme longer, smaller; Fruit bright red as in Shepherdia argentea. † Sylvan Lake, August 17.

740. Sambucus racemosa L. var. - Like the preceding, but the fruit is amber yellow. This is a fully analogue case to the Shepherdia, which also is found with amber colored fruit. - Sylvan Lake, August 17.

741. Viburnum oplus L. - Canon, north of Runkels, June 30.

742. Viburnum lentago L. - The margined petioles are quite rufous pubescent as the should be in V. prunifolium, but all are long acuminate. (V. prunifolium is said to be found in the Hills. I have not seen it . May be this has been misstaken for it.) - Little Elk, June 28; Runkels, June 30.

743. Linnaea borealis Gronov. - Common in the northern Hills, also seen in the Harney Range. - Elk Canon, June 29; Lead City, July 6.

744. Symphoricarpos racemosus Michx. var. pauciflorus Robins. Common: Little Elk, June 28; Elk Canon, June 29; Lead City, July 6; Rochford, July 12.

745. Symphoricarpos occidentalis Hook. - Very variable: flowers few or many, style glabrous or sparingly villose, stout or slender, leaves entire or lobed, large and thick or small and thin, some forms approaching the preseding. - Elk Canon, June 29; Hot Springs, August 9; Custer, August 12.

746. Symphoricarpos occidentalis Hook. var - Leaves thin, ovate, acute or acuminate or even cuspidate; corolla thin, less bearded, lobes narrower. - Custer, august 19. The same form has been collected by Dr. Chas.E.Bessey in Colorado.

747. Lonicera . . . . . - It seems to be near L. caprifolium, but it is not L. grata, as the corolla is yellow, yurning reddish, and the lips not over 1/4 of an inch. It might be L. ciliosa Poir., as the lip is only slightly bilabiate, but

the leaves are not at all ciliose. The stem is either bushy or climbing; the corolla about an inch long; the leaves oval somewhat glaucous and whitened beneath. - Little Elk, June 28; Lead City, July 6.

RUBIACEAE.

748. Galium aparine L. - Hot Springs, June 13.

749. Galium triflorum Michx. - Elk Canon, June 29; Lead City, July 6.

750. Galium boreale L. - Hot Springs, June 15; Hermosa, June 22; Rapid City, June 25; Elk Canon, June 29.

VALERIANACEAE.

751. Valeriana edulis Nutt. - Rochford, July 12; Orewille, July 16.

752. Valeriana silvatica Banks. - Rochford, June 12; Orville, July 16.

COMPOSITAE.

753. Liatris scariosa Willd. - Custer, August 1.

754. Liatris punctata Hook. - Hot Springs, August 3; Custer, August 1.

755. Kuhnia eupatorioides L. var. corymbulosa T.& G. - Hot Springs, August 2.

756. Grindellia squarrosa Dunal. - Hot Springs, August 2.

757. Grindellia nana Nutt.(?) - I have not seen this plant species and my plant may not belong to it, but instead be a form of the preceding. The character of the achenes can not be determined, their being to young. Only two small specimens were secured in bloom, but several plants were seen near Fall River Falls, June 17.

758. Crysopsis villosa Nutt. - Rochford, July 12; Custer, July 15.

759. Crysopsis villosa Nutt. var. canescens Gray. - Custer, July 15. One specimen from Hot Springs is unusually tall and with large heads, August 2.

760. Happlopappus grindelioides (Nutt.) (H. nuttallii T.& G. Gipsum rocks, Hot Springs, August 2.

761. Happlopappus spinulosus (Nutt.) DC. - Rare. - Hot Springs August 2.

762. Solidago . . . . . - It agrees well with the description of S. uliginosa, but it did not grow in "boggy places" at all. It was found in open places in the pine woods near Custer. The pines grow only ob the more or less hilly places, never in the true valleys. It might be a form of the more western S. spectabilis but the achenes are glabrous; or of S. speciosa , but the primary veins are more or less prominent, and often looped. Custer, August 16.

763. Solidago missouriensis Nutt. - This species is very

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Typewritten ms.

variable, and hard to define. Many of my specimenshave the leaves or especially the petioles ciliate, as they should be in S. gattingeri; some are minutely strigose roughened above, especially the branches of the panicle, as in S. shortii. Three principal forms which I have set aside as separate numbers. Intemediate forms, however, were found. The first, which I regard as coming nearest the type, has a short spreading panicle with recurved branches, smaller heads and less conspicuous rays. Custer, August 14.

764. Solidago missouriensis Nutt. var montana Gray.- 6-8 ind high with short rounded panicle, with nearly erect branches, rays more conspicuous. - Custer, August 16.

765. Solidago missouriensis Nutt. var. (extraria Gray.(?)). Leaves broader, the lower 1/2 inch wide, tall, about 18 inches, panicle narrow with nearly upright branches and larger heads and rays. . It is somewhat approaching No. 762, together with which it grew. Possibly a hubrid. - Custer, August 16.

766. Solidago . . . . . - It seems to be related to S. serotina. Leaves lanceolate with distant salient teeth, stem 3 feet high, minutely and finely pubescent, heads small in a small cluster, which is however, not outgrown. Only two specimens secured at Little Elk, June 28.

767. Solidago canadensis L. var. porcera (Ait.) Gray. Custer, August 1.

768. Solidago nemoralis Ait. - My specimens are scabrous, rather than soft pubescent and in that respect approaching S. sparsiflora. Some specimens have axillary clusters and resemble somewhat S. bicolor var. concolor. - Custer, August 16.

769. Solidago rigida L. var. - Smaller than the form common in Eastern Nebraska, 1-2 feet high, more cinerious; corymb more open, heads smaller, rays lighter, radical and lower cauline leaves gradually acuminating into a winged petiole, all with partly clasping, but not decurrent base. - Custer, August 16.

770. Solidago lanceolata L. - The corymb in all my specimens are unusually small and dense with few larger heads. - Hot Springs, August 10.

771. Aster sibiricus L. (?) - I took it at first for unusually small specimens of A. conspicuus, but the achenes are pilose under the lens and the involucre shorter than the disk, the pappus tawny. - Custer, August 13; Rochford, July 12.

772. Aster laevis L. All specimens are small, some very lo and slender with narrowly lanceolate leaves. - Custer, August 16.

773. Aster communatus Gray. - Custer, August 16.

774. Aster patulus Lam. (?) - Like specimens of A. prenanthoides MUhl/ in the Herb. U. of N. , but the base of the leaves i is not at all cordate. Only two specimens secured. Custer, August 13.

775. Aster . . . . . I can not locate this aster. It is very slender with few, smallish heads ending the branches; leaves linear, one-nerved with slightly revolute margins; bracts linear

linear, thin, scarious margined, with a narrow green part; rays purely white. - Custer, August 15.

776. Aster . . . . . Like the last, but more branched; heads more corymbose with thicker bracts, and leaves not revolute; I have seena specimen of this named A. salicifolius, but it does not fit the doscription therof verywell. - Custer, August 15.

777. Aster ptarmicoides T.& G. - Lime stone district, July 25.

778. Erigeron glabrellus Nutt. - More or less strigos all over; generally 12-18 inches high with several heads; but the specimens from the Lime Stone district , alt between 600 and 800 feet, are lower, about 9-10 inches high, and with 1-3 heads. - - Rochford, July 11; Lime stone distict, July 25.

779. Erigeron . . . . . Undoubtedly it is nearly reated to E. speciosus DC., macranthus Nutt., and glabrellus Nutt. The plants are gravish scrabrous-strigose throughout, and leafy to the top; leavé oblong lanceolate-ovate lanceolate, more or less distinctly 3-5 ribbed, thinnish, the lower petioled, the upper half clasping heads 1-5 corymbose, 3/4 inch wide and 3/8 inch high; rays 1/2 inch long, blue or flesh-color: involucre strigose. It can not be E. macranthus as the involucre is strigose, and not E. glabrellus var mollis, as the pubescens is far from soft. In the Herbarium of the University of Nebraska, there is one specimens of the same plant from Texas, labeled E. macranthus, but this differs as well as mine from other specimens in the same herbarium, vy the thinner, broader, 3-5-ribbed leaves, the smaller heads, and strigose bracts. - Custer, August 15.

780. Erigeron pumilus Nutt. - Dry table land; Hot Springs, June 13.

781. Erigeron compositus Pursh var. trifidus (Hook.) Gray. - All my specimens are strictly scapose, without any stem leaves, and densely matted, with a multiplex woody caudex. On exposed rocks in high altitudes, nearly 700 feet. Lime Stone district, July 27. Plant also seen near the Needles, in the Harney range,.

782. Erigeron canus Gray. - Dry table land, Hot Springs, June 13.

783. Erigeron philadelphicus L. - Very variable, near water: Hot Springs, June 17; Hermosa, June 22; Elk Canon, June 29.

784. Erigeron flagellaris Gray. - The specimens from the Buckhorn Mountains, near Custer, have much smaller and narrower radical leaves than the rest. - Hot Springs, June 17; Hermosa, June 22; Buckhorn Mountains, Custer, July 14.

785. Erigeron strigosus Muhl. - Buckhorn Mountains, Custer, July 14.

786. Erigeron annerifolius Turcz. - Radical leaves numerous and sputulate. Custer, August 20.

787. Erigeron canadensis L. - This common weed is nearly lacking in the Black Hills. Custer, August 20.

789. Erigeron canadense L. - A few depauperate specimens, undoubtedly belonging to this species. Custer, August 20.

989. Evax prolifera (Nutt?) - Barren Hills; Hot Springs, June 13.

790. Antennaria dioica Gaertner - My collection of Antennariae pussles me very much. I have collected 6 forms belonging to A. dioica and plantaginifolia, of which I have referred 3 to each. No. 790. I think is a somewhat typical A. dioica. The radical leaves are 1/2 to 3/4 inch , 1/8 to 1/4 inch wide, silvery white on both sides; bracts all obtuse, the papery portion white or pinkish. - Hot Springs, June 13; Rochford, July 11.

791. Antennaria dioica Gaertner var. (parvifolia T. & G.) - More diffusely spreading; radical leaves narrower, oblanceolate, more or less revolute, finely silvery on both sides; flowering stem very slender, 10-18 inches high, bearing smaller heads with brightly rosecolored bracts. - Rochford, July 12.

792. Antennaria dioica Gaertner.(?)Peculiar forms combining characters of several Antennariae, some having the leaves large and plainly 3-ribbedand the bracts scutich in most female heads as in A. plantaginifolia, and the bracts livid brownish, approaching in that respect A. alpina, but in general habitus like A. dioica, to which I have referred it; heads several, crowded. - Custer June 6.

793. Antennaria plantaginifolia Hook. - 6-16 inches high, radical leaves one to one and a half inch long and 1/2 inch wide/ silky on both sides, but greenish above, whitened below; heads large with acute bracts in the female flowers. - Hot Springs, June 13; Hermosa, June 3 ; Lead City, July 4.

794. Antennaria plantaginifolia Hook. var. - Low, 3-4 inches, with smaller heads; radical leaves more obovate, of about the same size as in the proceeding, but wholly glabrous above, white beneath. In general appearance, it differs much from the preceeding, but I can not find any charactorthat can distinguish thom. I have not seen any intermediate forms though. Early in spring: Custer, May 30.

795. Antennaria plantaginifolia Hook. - Like No. 793, but the stem more slender; the leaves smaller and like those of A. dioica, densely- silvery on both sides, about 1/2 inch long, bracts narrow acute, less floccose. It is the same form as my No. 173 of my Western Nebraska collection, and ~~might~~ be A. planteginifolia Hook. var parvifolia O.K. - Lead City, July 6.

796. Anaphalis margaritacea R.Br.) Benth.& Hook. - Englewood, August 13.

797. Iva xanthifolia Nutt. - Waste place, Custer, August 19.

798. Ambrosia psilostachya DC. - This and the next are some-t times hard to distinguish. - Hot Springs, August 2.

799. Ambrosia artemisifolia L. - Custer, August 11.

800. Polinsoea angustifolia DC. - Custer, August 1.

801. Rudbeckia hirta L. Meadows: Rochford, July 12; In the Lime-stone District, July 26.

802. Lepachys columnaris T.& G. - Custer, August 1.

803. Helianthus annuus L. - Custer, August 1.

804. Helianthus petiolaris Nutt. - A form with opposite leave but only two specimens secured. - Hot Springs, August 2.

805. Helianthus rigidus Desf. - Custer, August 1.

806. Helianthus maximiliani Schraeder. - Custer, August 15.

807. Helianthella quinquenervis Gray. - There are no specimen of this in the Herb. U. of M. The leaves are as often alternate as opposite. Hills in the Lime- stone District, near Sips, July27

808. Balsamorrhiza sagittata, Nutt. - It it adoubtly this species, although it does not resembles very closely specimens of it in the Herb. U. of M. - Hills, near Sips, in the Lime stone District, July 27.

809. Bidens laevis var. . . . . Low with short rays. - Pringle, August 6.

810. Bidens laevis var. . . . . Very slender; leaves about an inch long, not connate; heads about ½ lines long, few-flowered. Sparingly strigose. - Pringle, August 6.

811. Hymenopappus filifolius Hook. - It is scarsely scapiform. Hot Springs, June 13 & August 2.

812. Actinella acaulis Nutt. - Hot Springs, June 12; Lead City, July 4.

813. Gaillardia aristata Pursh. (?) - 12- 18 inches high, the involucre hirsute and woolly; rays only 1/2-3/4 inches long. Meadows; Rochford, July 12; Lime Stone District, July 26.

814. Dysodia chrysanthemoides Lag. - Hot Springs, August 8.

815. Anthemis cotula DC. - Hot Springs, August 2.

816. Achillea millefolium L. - Elk Canon, June 29; Lead City, July 4; Hot Springs, August 2.

917. Artemisia canadensis Michx. - Custer, August 15.

818. Artemisia dracunculodes Pursh. - Custer, August 15.

819. Artemisia frigida Willd. - Custer, August 19.

820. Artemisia ludoviciana var. gnaphalioides (Nutt.) - Custer, August 19.

821. Petasites sagittata (Nutt.) Gray - A large patch found on the Rapid creek, above Rochford, July 12; but only 3 specimens in fruit secured.

822. Arnica cordifolia Hook. - Elk Canon, July 29; Lead City, July 4; Rochford, July 12.

823.Arnica alpina. - Wherever I found it, it was usually 3-cephalous and 12-18 inches high. - Little Elk, July 28; Custer, July 16.

824. Senecio rapifolius Nutt. - It agrees well with the description of that species, except that it is sometimes taller, 1-2 feet high. Custer, August 12.

825. Senecio lugens Rich. - Rochford, July 11; Hot Springs, August 8.

826. Senecio interrimus, Nutt. (?) - Like the last, but the leaves and bracts more fleshy; the heads larger, fully 1/2 inch or more; the bracts are thickened in the middle, so also the bas of the involucre. I would rather take it for S. hydrophilus, the description of which it fits, but it resembles specimens of S. interrimus in the Herb. U. of N., except the leaves are narrower in mine. - Hermosa, June 23.

827. Senecio aureus L. - Leaves very thin and wholly glabrous; bright green, the lower obovate, serrate. Lead City, July 6; Rochford, July 11; Custer, July 16/

828. Senecio aureus L. var. balsamitae (Muhl.) Gray - - Hot Springs June 15/

829. Senecio canus Hook. - Tall, 12-18 inches high; densely woolly; root leaves entire, broadly oblanceolate, oblong or spatulate; 3-4 inches long and 1/2-3/3 inch wide. - Battle Mountain, near Hot Springs, June 19; Lead City, July 4.

830. Senecio canus Hook. var. - Like the last, but greener, leaves thin; wool deciduous. In appearance it approaches somewhat the preceding species, especially the involucre which is nearly destitute of wool.) Lead City, July 6.

831. Senecio canus Hook. var. - Low; the leaves narrow; the lower narrowly spatulate or oblanceolate, 1-3 inches long and about 2 lines wide, with more or less revolute margins. - Hot Springs, June 13.

832. Cnicus undulatus Gray. - Custer, August 12.

833. Cnicus undulatus var ochrocentrus Gray. - I may believe, this is only a form of the last, and should not be separated as a species. In Western Nebraska, they seem to be somewhat distinct, and had different time of blooming, but in the Black Hills, they run togetherwithout distinction. - Custer, August 1.

834.Cnicus Drummondii Gray - Custer, July 16.

835. Centaurea cyanus L. - Only one specimen collected on a road side, near Hot Springs, August 3.

836. Hieracium canadense Michx.(?) There is no specimen of this in the Herb. U. of N. One there with this name belongs, without doubt, to the next, but has narrower leaves than my specimens. - Custer, July 12.

837. Hieracium umbellatum L. var. - Like the last but with thicker leaves and purplish stem. It is like specimens of H. um-

b

bellatum from Europe; but has fewer heads. - Rapid City, June 25.

838. - Hieracium (?) . . . . . Only one specimen found together with the preceding, which it resembles as to the leaves; but but the stem is hispid, especially at the top, and the bracts are broad.

839. Hieracium fendleri Gray. The black hills are without the supposed rence of this species; but my specimens agree fully with as well the description of it as specimens in the herb. U. of P. The leaves of the latter have a reddish tinge, which mine lack. Rochford, July 12.

840. Crepis runcinata T. & G. - Very variable as to the foliage. I have given the following form a separate number. - Hermosa, June 28; Lead City, July 7; Rochford, July 11; Custer, July 16.

841. Crepis runcinata T. & G. var. - Stouter, 18 inches high, with broader leaves; head larger; involucre of thicker bracts, with the pedancles covered , densely, with yellowish glands. - Rapid City, July 25.

842. Prenanthes racemosa Michx. - Custer, August 15.

843. Troximon glaucum Natt. - Rapid City, June 25; Elk Canon, June 27

844. Troximon glaucum Natt. var. parviflorum Gray. - Custer, July 16.

845. Troximon glaucum Natt. var. dasysepalum T. & G. - Custer, July 16.

846. Taraxacum officinale Weber. - Rapid City, July 25.

847. Lactuca ludoviciana DC. - East of Custer, July 23.

848. Lactuca pulchella DC. - Custer, August 15; Hot Springs, August 2.

849. Sonchus asper Vill. - Hot Springs, August 2.

LOBELIACEAE.

850. Lobelia spicata Lam. - Custer, August 1.

CAMPANULACEAE.

851. Specularia perfoliata A.DC. - Corroliferous flowers not seen. - Whitewood, July 7; Custer, July 16.

852. Campanula rotundifolia L. - Hot Springs, June 17; Hermosa, June 22; Lead City, July 4.

853. Campanula aparinoides Pursh. - Custer, August 19.

ERICACEAE.

854. Vaccinium vitis-idaea L. var. microphyllus Hook. - Neither flowers nor fruit seen. In a shady hillside, near Lead City, July 6.

855. Arctostaphylos uva ursi Sprenn. - Common throughout the Black Hills, and popularly called "kinnekanick". - Custer, June 3.

856. Purola secunda L. - Little Elk, June 27; Lead city, July 6.

857. Pyrola chlorantha Schwartz. - Little Elk, June 27; Custer August 19.

858. Pyrola cleptica Nutt. - Lead city, July 6; Custer, August 19.

859. Pyrola rotundifolia L. - Only one specimen collected at Lead City, July 6.

860. Pyrola rotundifolia L. var. bracteata Gray. - The large bracts and purplish flowers distinguishes it as this variety, which has been supposed to be of a more westerly range. In a cold bog above Sylvan Lake, at an altitude of nearly 7000 feet, July 19.

861. Pterospora andromedea Nutt. - In fruit from last year: Custer, June 3; in flowers: Sylven Lake, August 19.

PRIMULACEAE.

862. Dodecatheon meadea L. var. frigidum Gray. - Leaves narrow, on long petioles, thin, blunt; scape slender, few-flowered; calyx lobes lanceolate, ,less than half the oblong capsule. - Custer, May 28 & June 2.

863. Dodecatheon meadea L. var. - Like the last, but stouter; ? flowers later and more numerous; leaves broader and shorter. It seems to approach the eastern typical form of D. meadea, but the bracts are lanceolate. - Custer, June 3.

864. Androsace septentrionale L. - Custer, June 3; Elk Canon, June 29.

865. Androsace occidentale Pursh. - Hot Springs, June 14.

866. Steironema ciliatum Raf. - The leaves of the Custer specimens are scarcely subcordate at the base. - Rochford, July 11; East of Custer, on the French Creek, July 22.

867. Lysimachia thyrsiflora L. - Elk Canon 29.

868. Centunculus minimus L. - Custer, August 20.

OLEACEAE.

869. Fraxinus pubescens Lam. - Hermosa, June 22.

870. Fraxinus viridis Michx. - Hermosa, June 22.

APOCYNACEAE.

871. Apocynum androsaemifolium L. - Hermosa, June 24; Rapid City, July 25; Little Elk, June 27; Lead City, July 8.

872. Apocynum . . . . . It seems to be intermediate betwen the two Apocyna. Leaves short petioled and corolla greenish white and smaller than in the preceding, branches more upright. In general appearance, it resembles more the preceding than the form of A. cannabinum that is common in Eastern Nebraska, which has longer, thicker, sessile leaves and the lobes of the corolla not at all spreading. I found a simil r specemen near Scott's Bluff, Nebraska, in 1891. Elk Canon, June 29; Hot Springs, August 3.

No. 1162

FLORA OF THE BLACK HILLS

OF SOUTH DAKOTA.

Glyceria arundinacea Kunth

CUSTER, ~~May~~ July 16 1892.

Coll., P. A. RYDBERG.

Alt. 5500 Feet.

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ASCLEPIADEAE.

873. Asclepias ovalifolia Desc. - The leaves, however, are seldom rounded at the base. - East of Custer, on the French Creek, July 22.

874. Asclepiasverticillata L. var. pumila Gray. - Minnekahta, August 6.

875. Acerates stenophylla. - My specimens are of the Asclepias #Pothacerates type. Mr. Holzinger has shown that Acerates auriculata and Asclepias stenophylla is the same plant: but differing in opinion from him, I believe it should be refered to Acerates rather than to Asclepias, if not be placed in a genus by itself. Only two specimens secured. - Minnekahta, August 5.

876. Acerates viridifolia Ell. var. lanceolata. - Only one specimen found, Minnekahta, August 5.

GENTIANACEAE.

877. Gentiana . . . . . It is like G. amarella, and may be a form of the same; but differs in having the flowers greenish yellow occationally bluish at the limb, leaves very thin, broad, and destinctly 3-5-ribbed. The whole plant was light green, in this respect as well as in the broad, thin leaves resembling the next, from which it is nearly impossible to distinguish the young plants. Custer, August 15.

878. Halenia deflexa Griseb. - - Deadwood, July 5; Custer, August 15.

879. Frasera speciosa Dougl. - Lead City, July 2; Lime Stone District, July 25.

POLEMONIACEAE.

880. Phlox douglassii Hook. var. (?) Prostrate, spreading, slender with very narrow subulate weak leaves; corolla tube scarcely longer than the calyx. It might be a form of P. caespitosa. - Hot Springs, June 13.

881. Phlox douglasii Hook. - Hot Springs, June 13.

882. Phlox douglasii Hook. var longifolia Gray. - Hot Springs, June 14.

883. Phlox stansburyi Torr. I believe this to be distinct from P. longifolia . Not only the glandular pubescens, but the whole general appearence separate it from the specimens of this in the Herb?. U. of K. There are no specimens of P. stansburyi in the herbarium. - Hot Springs, June 13; Sylvan Lake, July 19.

884. Phlox stansburyi Torr. var. brevifolia Gray. - It differs from the last in being more caspitose, in having shorter leaves, nearly sessile flowers and shorter tube. It is very like P. kelseyi Britton, typical specimens of which are found in the Herb. U. of K. donated by Dev Kelsey himself. My specimens scarsely differ from them except in the color of the flowers and the shortness of the leaves. Dr. Britton states that the P. stansburyi var. brevifolia of Jenney's collection , belong to P. kelseyi. This is without the same plant , being collected not 20 miles from Jenney's stocks ade. but if this is to be referred to P. kelsevi, the foregoing should go there too. If so the distinctive charecters of P. kelsey viz. the sessile flower &c, are not constant. Bull Springs, July 25

885. Gilia linearis (Nutt.) Gray. - Specimens from Lead City unusually large and branching, even up to 18 inches high. - Hermosa, June 23; Lead City, July 7; Rochford, July 11.

886. Gilia spicata Nutt. var. capitata Gray. - The general description as well as the locality, tends indicate that it is this variety. I, however believes that it is wholly distinct from G. spicata. Except to the leaves it is in every respect different from the G. spicata collected by me in Western Nebraska. - Hot Springs, June 13; Deadwood, July 5; Lime Stone District, near Bull Springs, July 25.

HYDROPHYLLACEAE.

887. Ellisia nyctalea L. - Edgemont, May 27; Rochford, June 11; Oreville, July 16.

BORAGINACEAE.

888. Echinospermum virginicum Lehm. - - Only one specimen in flower found near Lead City; July 6.

889. Echinospermum deflexum L var. americanum Wats. - (?) - The flowers in my specimens are very minuty, leaves inch and a half.- Only two specimens secured at Lead City, July 6.

890. Echinospermum floribundum Lehm. - Hot Springs, June 13; Elk Canon, June 29; Custer, July 16.

891. Echinospermum floribundum Lehm. var. (?) - Differs from the last in having much thicker, narrowly lanceolate leaves, with prominent midrib, but no lateral veins. - Oreville, July 16.

892. Echinospermum sp - like the last, but taller, 3-6 foot high, branched from a perannial (?) root, in big bushy lumps of a dozen stems or more; upper parts of the plant yellowish silky puberulent, lower parts somewhat strigose; the lower leaves spatulate, the upper, lanceolate, with prominent midrib and no lateral veins, thickish; fruit unseen. - Rochford, July 11., where it was not uncommon, but only a few were in bloom.

876/ Echinospermum redowskii Lehm . var - Branched from belw, more leafy than the next, corolla larger, more campenulate, calyx more foliaceous. It resembles E. lappula, but I can not find any difference in the young fruit from those of the next. I did not see any mature fruits. - Edgemont, May 27; Hot Springs, June 15.

877. Echinospermum redowskii Lehm. var. occidentale Wats. - Hot Springs, June 13; Hermosa, June 23; Custer, July 16.

893.Krynitzkia glomerata (DC.) Gray. - Hot Springs, June 13; Whitewood, July 7.

894. Krynitzkia pattersonii Gray. - The seeds are brown spotted and less attenuate than in K. fendleri,but otherwise as in that species; the leaves are broader. - Lead city, July 6; Rochford, July 12.

895. Krynitzkia sp. . . . . - A delicate plant, growing in a shady place; leaves oblanceolate, spatulate or oblong. No seeds were seen, and I can not locate the plant. It might be a form of the preceding. - Buckhorn Mountain, near Custer, July 16.

896. Myosotis sivatica Hoffman var. - Slender, 6-12 inches high, racems loose and the pedicels longer than the fruiting calyx. - - Sylvan Lake, July 19.

raceme loose and pedicels longer than the fruiting calyx. - Sylvan Lake, July 19.

575. Myosotis stricta L. var. macrosperma Chapman. - Hot Springs June 13.

897. Mertensia sibirica Don. - Only one specimen collected in fruit, at Rochford, July 12, that seems to agrees with specimens inmy herbarium, collected by marcus Jones.

898. Mertensia paniculata Don. var. The calyx is not ciliate, and the corolla only 3-4 lines long.- Rochford, July 12.

899. Mertensia paniculata Don. var. alpina Wats.- Like M. alpina except to the length of the corolla, and to the filaments, which are as broad as the anthers. I took it at first for M. lanceolatabut it differs from it in having larger flowers, narrow linear calyx lobesand thicker, somwhat fleshy leaves. - Custer, May 30.

900. Mertensia lanceolata DC. Sylvan Lake, July 19.

901. Lithospermum angustifolium Michx. Hot Springs, June 16; Buffalo cap, June 21; Custer, August 1.

902. Onosmodiumcarolinianum DC. - Hot Springs, June 16.

CONVOLVULACEAE.

903. Evolvulus argenteus Pursh - Hot Springs, June 15.

578. Ipomaea leptophylla Torr. - Hot Springs, June 15.

904. Convolvulus sepium L. - Custer, August 1.

SOLANACEAE.

905. Solanum triflorum Nutt. - R.R.bank, Custer, July, 16.

906. Solanum nigrum L. - Hot Springs, June 15.

907. Solanum rostratum Dunal. - Custer, August 1.

908. Physalis sp. . . . . It resembles somewhat P. virginiana, but is upright, and with thinner leaves. It seems to be intermediate between the above and P. mollis var. cinerascens. - East of Custer, on the French Creek, July 23.

909. Physalis lanceolata Michx. - Lead City, July 6.

910. Physalis longifolia Nutt - Hot Springs, June 18.

SCROPHULARIACAEA.

911. Verbascum thapsus L. - R.R. banks Fall River Fall, August 1

912. Linaria canadensis L - (?)- Custer, August 20.

913. Collinsia parviflora Dougl. - Little Elk, June 27; Elk Canon, June 29.

914. Scrophularia sp. . . . . The leaves are like those of S. californica but larger. The steril stamen is orbicular as in S nodosa, the upper part of the tall (±-6 feet - plant is yellow glandular and the corolla greenish yellow, and more saccate than

in either. The specimens became somewhat damaged, when-- by rain, when my tent was blown down, the day after they were collected. Rapid City, July 25.

915. Pentstemon grandiflorus Nutt. - Hermosa, June 24.

916. Pentstemon glaber Pursh. - North of Deadwood, July 5; - Rochford, July 12; Custer, July 18.

917. Pentestemon haydenii Wats. - Only two specimens collected at Hot Springs, June 15.

918. Pentstemon jamesii Benth. - Hot Springs, June 16. There is no specimen in the Herb. U. of M.

919. Pentstemon cristatus Nutt. - Only two small specimens were found in Elk Canon, June 29, and two depauperate ones-- overblooded ones in the Lime Stone district, near Bull Springs, July 27.

920. Pentstemon albidus Nutt. - Only one specimen found at Hermosa, June 23.

921. Pentstemon gracile Nutt. - Hot Springs, June 15; Hermosa, June 22; Elk Canon, June 29; Lead City, July 6; Rochford, July 11.

922. Minulus luteus L. - Lead City, July 9.

923. Mimylus jamesii T. & G. - Hot Springs, June 18; Custer, August 1; Pringle, August 5.

924. Graticla virginica L. - The corolla in my specimens are about twice longer than the calyx. - Buckhorn Mountain, near Custer, July 16; West of Custer, July 25.

925. Synthyris rubra Benth. - Custer, June 6.

926. Veronica anagallis L. - Hot Springs, June 16/

927. Veronica americana Schm. - Rapid City, June 26; Whitewood, July 7; Custer, August 1.

928. Veronica peregrina L. - Decidedly glandular. - Hermosa, June 23; Lead City, July 6.

929. Castilleia pallida Kunth. var septentrionalis Gray. - - Little Elk, June 27; Elk Canon, June 29; Lead City, July 6.

930. Castilleia sessiliflora Pursh. - Hot Springs, June 15.

931. Orthocarpus luteus Nutt. - Custer, August 1.

VERBENACEAE.

932. Verbena hastata L. - Hot Springs, June 16.

932. Verbena stricta Vent. - Custer, August 1; Hot Springs, Aug 3.

934. Verbena bracteosa Michx. - Lead City, July 9.

935. Verbena bipinnatifida Nutt. - Two miles east of Fall River Falls, June 18/.

OROBANCHACEAE.

936. Aphyllon fasciculatum Gray. - Custer, June 6.

937. Aphyllon ludovicianum Gray. - R.S. between Hot Springs and Fall River Falls, August 6.

LABIATAE.

938. Monarda canadensis L. var glabrata Benth. - Hot Springs, August 3; Custer, August 20.

939. Lycopus sinuatus Ell. - Custer, August 20.

940. Hedeoma hispida Rush. - Rockford, July 11; Custer, August 1; Minnekahta, August 4.

941. Hedeoma drummondii Benth. - Custer, July 16; Hot Springs, August 2.

942. Salvia lanceolata Willd var. - Leaves broadly oblong or spatulate. - Custer, July 16; Hot Springs, August 2.

943. Monarda fistulosa L. - Hot Springs, August 2; Custer, August 15.

944. Monarda fistulosa L. var. mollis Benth. - Rockford, July 1

945. Lophanthes anisatum Benth. - Whitewood, July 7; East of Custer, July 22.

946. Brunella vulgaris L. - Whitewood, July 7; East of Custer; July 22.

947. Dracocephalum parviflorum Nutt. - Elk Canon, June 29; - Rochford, July 12.

948. Scutellaria galericulata L. - Custer, July 16 ? August 1.

949. Stachys palustris L.- Lead City, July 7; Custer, August 20.

950. Stachys aspera Michx. - Custer, August 20.

PLANTAGINACEAE.

951. Plantago major L. - Rochford, July 11; Custer, August 1.

952. Plantago patagonica Jaq. var. gnaphalioides Gray. - Minnekahta, August 6.

NYCTAGINIACEAE.

953. Allionia nyctaginia(Sweet.) - Hot Springs, August 2.

954. Allionia nyctaginia (Sweet.) var. servantesii (Steud.) - I boleive this is distinct from A. nyctaginia. - Custer, August 1

955. Allionia hirsuta Sweet. - Rochford, July 11; Hot Springs, August 2.

956. Allionia . . . . . like the last , but glabrous up to the inflorescence; leaves firm. Hot Springs, August 3.

957. Allionia albida Walt. (?) - Like the last, but with linear leaves. It also resembles A. angustifolia, from which it differs in the hispid peduncles and involucres, the darker flowers, the undulately dentate and sparingly ciliolate leaves, and the taller stouter groth. It resembles a specimen of A. albida from Texas, distributed by the U.S.Dep.Ag.- Plains, beteen Custer and Hairburn, July 23.

958. Allionia angustifolia Sweet.- Custer, August 1; Hot Springs, August 3.

ILLECEBRACEAE.

959. Paronychia jamesii T. & G. - Hot Springs, June 13; Hermosa, June 23.

AMARANTACEAE.

960. Amarantus blitoides Wats. - Minnekahta, August 4.

CHENOPODIACEAE?

961. Chenopodium hybridum L.(?) - One specimen collected at Hot Springs, June 17.

962. Chenopodium album L. - Hot Springs, June 17.

963. Chenopodium fremontii Wats. - Sylvan Lake , July 20.

964. Chenopodium fremontii Wats. var. incanum Wats. - If the preceding is the true C. fremontii, I beleive that this is more related to C. leptophyllum than to C. fremontii. - Two small specimens collected near Fall River Falls, June 17.

965. Chenopodium leptophyllum Nutt. - Hot Springs, June 17.

966. Chenopodium capitatum Wats. - Rochford, July 11.

967. Monolepes chenopodioides Moq. - Leaves more or less sinuatoly lobed; stem more upricht than in my Neb. specimens. - Buffalo Gap, June 21; Rochford, July 11.

POLYGONACEAE.

968. Eriogonum flavum Nutt. - Hermosa, June 23; Lead City, July 4.

969. Eriogonum annuum Nutt. - Hot Springs, August 3.

970. Eriogonum pauciflorum Nutt. (?) - It agrees well with the desciption of this species and to the specimens in the Herb. U. of N., except that the involucre is narrowly turbinate and the scape more slender.- Hermosa, June 23.

971. Eriogonum multiceps Rees. - Hot Springs, August 3.

972. Rumex venosus Pursh. - Custer, June 5; Hermosa, June 27.

973. Rumex occidentale Wats. - Buffalo Gap, June 21; Custer, August 1.

974. Rumex salicifolius Wamman. - Rochford, July 12.

975. Rumex crispus L. - Lead City, July 7; Custer, August 1.

976. Rumex acetocella L. - Whitewood, July 8

975. Rumex crispus L. - Lead City, July 9; Custer, August 1.

976. Rumex acetocella L. - Whitewood, July 7.

977. Polygonum convolvulare L. - Rochford, July 11; Custer, August 1.

978. Polygonom aviculare L. (?) var. - Very delicate and erect Hot Springs, June 19.

979. Polygonum aviculare L. var . . . . It is the same as No. 343 of my Western Heb. Collection, named by me P. erectum var.(?), but changed by Mr. J.M.Holzinger to P. aviculare. It, however, runs into the next, which I think is a typical P. erectum. - Hot Springs, August 9.

980. Polygonum erectum Wats - Hot Springs, August 9.

981. Polygonum ramosissimum Michx, var - Very tall and seemingly connecting with the preceding, but the leaves are deminnishing upwards. - Hot Springs, August 9.

982. Polygonum ramosissimum Michx. - No. 979-982 were all growing together. - Hot Springs, August 9.

983. Polygonum tenue Michx. - Custer, July 16. -

984. Polygonum tenue Michx var. . . Remarkable for its large size, 18-30 inches high, and for its conspicuous sheath. - Custer, August 1.

985. Plugonum lapatifolium L. - Hot Springs, August 9.

986. Polygonum muhlenbergii Wats.- French Creek, east of Custer, July 24.

987. Polygonum viviparum L. - Sylvan Lake, July 19.

988. Polygonum convolvulus L. - Hot Springs August 9.

ELEAGNACEAE.

989. Eleagnus argentea Pursh. - Lime Stone District, near Bull Springs, July 27.

990. Shepherdia canadensis Nutt. - Custer, May 30., in fruit: Little Elk, June 25; Lead City, July 6.

SANTALACEAE.

991. Comandra pallida A.DC.- Hot Springs, June 19; Hermosa, June 25.

EUPHORBIACEAE.

992. Euphorbia glyptosperma Eng. - Hot Springs, August 9.

993. Euphorbia hexagona Nutt. - Hot Springs, August 9.

994. Euphorbia marginata Pursh. - Hot Springs, August 9.

995. Euphorbia dentata Michx. var. . ... . Leaves oval to lanceolate, more or less dentate, but not coarsely so; upper parts slightly hairy; seeds more or less obliquely, ovate pyramidal, with a grove on one side as in a similar spurge in my Nebraska collection, which according to mr. J.M.Holzinger fully agrees with the original E. cuphusperma, between which and E. dentata this stand. Some of the specimens are nearly similar to those of E. cuphusperma of my Western Nebraska collection, but some are very like E. dentata. I believe that both this and E. cuphusperma are only varieties of E. dentata. I have not seen seeds of E. dentata. If they are different enough to separate the two, my plant should be E. cuphusperma var., instead. - Hot Springs, June 19 & August 3

996. Euphorbia dictosperma Fisb. & Meyer. - Hot Springs, June 17 & August 2.

997. Euphorbia montana Engr. - Hot Springs, June 17.

998. Croton texensis Muell. - Hot Springs, August 9.

URTICACEAE.

999. Ulmus americana L. - Hot Springs, ~~August 5~~.

1000. Celtis occidentalis L. - Only one shrub found at Hot Springs, August 5.

1001. Urtica gracilis Ait. - Custer, August 1.

1002 Pariotaria pensylvanica Muhl. - Hot Springs, June 15.

1003. Humulus lupulus L. - French Creek below Custer, July 23.

CUPULIFERAE.

1004. Betula papyrifera Marsh. - Elk Canon, June 29.

1005. Betula occidentalis Hook. - Custer, June 5; Little Elk, June 27.

1006. Betula . . . . . I can not locate this. It seems to be nearest to Betula occidentalis, but the leaves are smaller, and glandular dotted as in the next; the aments shorter and the bracts with shorter lateral lobes. The bark of the twigs is more like that of B. glandulosa; so also the general groth, although higher. It is a bush of 8-10 feet. I thought at first, that it was B/ pumila; but the bark is evidently glandular dotted, and the wings about as wide as the body of the fruit.- Oreville, July 23.

1007. Betula glandulosa Michx. - Rochford, July 12.

1008. Corylus rostrata Ait. - Elk Canon, June 29.

1009. Ostrya virginica Willd. - Rapid City, June 25.

1010. Quercus macrocarpa Michx. - In most places, only a shrub of 10-20 feet. - Hermosa, June 24; Elk Canon, June 29.

1011. Quercus alba.(?) - Leaves deeper cleft with acutish lobes. The young trees were quite different in appearence, the preceding being shrubby and knotty, this being more upright and straight, with more vigorous groth and lighter foliage. No large trees and no fruit seen. - Hermosa, June 23.

SALICACEAE.

1012. Salix rostrata Richardson (?) - Small bush, 5-7 feet high. ♂ Custer, May 30.

1013. Salix rostrata Rich. - Like the last, but blooming a little later and still lower, only 3-4 feet high. - Custer, Jne 6

1014 .Salix discolor Muhl. (?) It may be a form of S. flvescens Nutt. -A shrub of 5-15 feets hight. - Custer, May 31.

1015. Salix discolor Muhl var.(?) - Like the last, but the bark of the twigs is yellow, instead of redrish purple. - Custer, June 4.

1016 Salix flavescens Nutt. It is like specimens in the Herb. U. of N. named so , and also agrees with the description of the same. Maybe the preceding two and this are but one species. - - Elk Canon, June 30.

1017. Salix cordata Muhl. var vestita Anderson. - Lead City, July 9.

1018. Salix glauca L. var. villosa And. - It is somewhat like specimens in the Herb. U. of N. named S. humilis; but it has, as well as those plainly serrate leaves, which are less woolly than those of S. humilis. - Vermosa, June 24; Custer, August 16; - Hot Springs August 7.

1019. Salix humilis (?) Rochford, July 12.

1020. Salix longifolia Muhl. - Rochford, July 12.

1021. Populus tremuloides Michx. - ♀ - Custer, June 4.

1022. Populus monilliferaAit. - Hot Springs, June 17; August 3

1023. populus monillifera Ait forma cuneata. - Leaves longer than broad, cuneate at the base and with long acumination and larger teeth. I found only one tree with unusually narrow crown and having every leafe of the above described form. - Hot Springs, August 3.

1024. Populus acuminata n.sp. It is the same as my no. 372 of my Western Nebraska collection, but the leaves are broader and with shorter acumination. It is described as a new species in the February number of the Bulletin of the Torrey Botanical Club, this year. - Hot Springs, August 3.

1025. Populus angustifolia James. - Little Elk , June 28.

ORCHIDACEAE.

1026. Corallorrhiza innata R.Br. - Little Elk, June 27; Lead City, July 6.

1027. Corallorrhiza multiflora Nutt. - Elk Canon, June 29; Lead City, July4; Custer, July 16; Sylvan Lake, July 19.

1028. Habernaria huperborea R.Br. - Lead City, July 6; Harney Peak, July 20.

1029. Habernaria bracteata R.Br. - Harney Peak, July 20.

1030. Spiranthes romanzoffiana Cham. - Custe, August 19.

1030. Spiranthes romanzoffiana Cham. - Custer, August 10.

1031. Goodyera repens R.Br. - Sylvan Lake, July 12. Only two specimens found.

1032. Cypripedium parviflorum Salisb. - Little Elk, June 25.

IRIDACEAE. -

1033. Iris missouriensis Nutt. - Little Elk, June 27; Rountree, July 12; Pringle, August 5.

1034. Sisyrinchium angustifolium. - Hot Springs, June 19; Elk Canon, June 29.

LILIACEAE.

1035. Allium cernuum Roth. (?) var. Bulb reddish, coat not fibrous, but reticulated longitudinally/ From a rizome (?); leaves several, halfround, channeled, but not keeled, striate; scape 12-14 inches high, terete, striate; umbell many flowered, nodding; pedicels 3/4 - 1 inch; perianth elements broadly ovate, acute, 1/2 the length of the exserted stamens; anthers orbated. From A. cernuum, it differs in the leaves being not keeled and the scape not angular. - Bull Springs, Lime Stone District, July 30; Custer, August 1; Hot Springs, August 3.

1036. Allium mutabile Mich. - Bull Springs, July 21; Custe, July 16; Hot Springs, August 3.

1037. Allium nuttallii Wats. - Edgemont, May 27; Hot Springs, June 18.

1038. Leucocrinum montanum Nutt. - Custer, May 10.

1039. Polygonatum giganteum Dietr. - Lead City, July 6.

1040. Smilacina amplexicaulis Nutt. - Lead City, July 6.

1041. Smilacina sessilifolia Nutt.- Hot Springs, June 11 & August 9.

1042. Smilacina stellata Desf. - Rare. - Elk Canon, June 29.

1043. Zygadenus canadense Desf. - Little Elk, June 27.

1044. Yucca angustifolia Pursh. - French Creek, July 23.

1045. Lilium philadelphicum L. - Little Elk, June 27.

1046. Calochortus gunnisonii Wats. - To the characters given in the genus could be added, bulb only a few inches below the surface at the time of blooming without secondary bulb. - Whitewood, July 7.

1047. Calochortus nuttallii T. & G. - Bulb leap down, 6-10 in. below the surface, at the time of blooming often with a small bulb, 1-2 inches above the principal one. - Fall River Valley, June 15.

1048. Streptopus amplexicaule DC. Sylvan Lake, July 20 & Aug.

1049. Uvularia sp. - Upper parts of the stem pubescent when young, otherwise smooth. The size of the flower is about that of U. perfoliata, but the perianth is perfectly smooth on the inside.

The pod is depresse , muricate; the cells semiorbicular, without any ridges or horns. The stamens are nearly as long as the style and the segments. - In a shady place below Sylvan Lake, June 8 & August 17.

1050. Zygadenus elegens Pursh. - Little Elk, June 27; Elk Canon, June 29; Bull Springs, July 26.

1051. Zygadenus nuttallii Grey. - Hot Springs, June 13.

1052. Smilax herbacea L. - Hot Springs, June 19.

COMMELYNACEAE.

1053. Tradescantia virginica L. - Hot Springs, June 13.

JUNCACEAE.

1054 Juncus vaseyi Eng.(?) In general, it seems to agree best with the description of this, especially in the plainly tailed seeds. As the leaves are channeled, often the whole way, it might be J. greenei, but it is out of the range of this. It seems to run gradually into J. tenuis, from which I can not distinguish it, except by the seeds. - Hot Springs, August 3.

1055. Juncus tenuis Willd. - Custer, May 30.

1056. Juncus bufonius L. - Hermosa June 28.

1057. Juncus longistylis Torr. - Lead City, July 6.

1058. Juncus ~~marginatus Roth. var.~~ Xiphioides montanus ~~bicapitatus~~ Eng. (?) - In agrees well with the description of that variety, but the sepals are nearly of the same length. The plant is also characterized by its large, membranous, scarious bracts. - Custer, August 16.

1059. Juncus sp. Cespitose, 8-12 inches high, slender; leaves about 3 inches long, channeled, but knotted; heads paniculed in the manner of J. tenuis, sub-solitary; sepals equal, lanceolate, acute or pointed, stamens 6, seeds not seen. - Custer, May 30.

1060. Juncus nodosus L. var. There are no specimens in the Herb. U. of M. of the true J. nodosus, nor of J. canadensis, to either of which this belongs. The seeds, however, are only micronate. - Hot Springs, August 3.

1061. Juncus nodosus L. var. Megacephalus Torr. - Hot Springs, August 3.

1062. Luzula comosa Meyer.(?) - Only a little villose. It is the same as L. campestis, distributed by Aiton, but the flowers in both are light colored and the foliaceous bracts long. Elk Canon, June 29.

ALISMACEAE.

1063. Sagittaria variabilis Eng. - Custer, July 16; Hot Springs, August 3.

POTAMOGETONEAE.

1064. Potamogeton marinus L. var. occidentalis Robbins. (?) - In the hot springs, above Hot Springs, June 15 & August 3.

1065. This number happened to be skipped.

LE

1o66

LEMNACEAE.

1o66. Lemna minor L. - Rapid City, July 25.

CYPERACEAE.

1o67. Cyperus aristulatus RottB. - Custer, August 19.

1o68. Cyperus acuminatus Torr. - Custer, July 16.

1o69. Scirpus pungens Wahl. - Very rare. Elk Canon, June 29.

1o7o. Scirpus lacustris L. - Elk Canon, June 29.

1o71. Scirpus atrovirens Muhl. - Custer, August 1.

1o72. Eriophorum cyperinus L. - Custer, July 16.

1o73. Eliocharis pauciflora Link. - Custer, July 16.

1o74. Eliocharis palustris R.Br. - Achenes lenticular, brown, tubercle rhomboidal, constricted below. - Lead City, July 6; Custer, July 16.

1o75. Eliocharis . . . . . - Achenes not seen, culm flattish, 2-2 1/2 feet, finely striate, purplish at the base; spikes 3-6 lines long, with a thick foliaceous, scarious margined bract. It is most like E. palustris, of which it may be a form. It resembles a specimen in the Herb. U. of M., named E. melanocarpa.- Hot Springs, August 3.

1o76. Eliocharis compressa Sull. - Low, about 8-1o inches high, wiry, bu t plainly flat; achenes bluntly triangular, yellowish, but not wrincled; tubercle small, pyramidal. Hot Springs, June 16; Hermosa, June 24.

1o77. Carex staminea Willd. var invisa W.Boott. - Hot Springs, August 3.

1o78. Carex filifolia Nutt. - Hot Springs, June 14. -

1o79. Carex . . . . . I hapened to know the two preceding careces. As I have vey little time, I did not undertake to work out the rest, not being able to do it thoroughly. - Custer, Aug.1

1o8o. Carex. . . . . Custer, May 5.

1o81. Carex. . . . . Custer, May 5.

1o82. Carex . . . . . Custer, May 6.

1o83. Carex . . . . . Custer, June 1.

1o84. Carex . . . . . Custer, June 4.

1o85. Carex . . . . . Sylvan Lake, July18 ? June 9.

1o86. Carex . . . . . Elk Canon, June 29.

1o87. Carex . . . . . Rochford, July 12.

1o88. Carex . . . . . Custer, July 16.

1090. Carex. . . . . .Custer, July 16.

1091. Carex . . . . . .Custer, July 16.

1092. Carex. . . . . Sylvan Lake, July 18.

1093. Carex. . . . . Lead City, July 6.

1094. Carex . . . . . Elk Canon, June 29; Sylvan Lake, July 18.

GRAMINEAE.

1096. Panicum capillare L. var. - Very small and slender form. - Hot Springs, August 9.

1097. Panicum virgatum L. - Fall River Falls, July 10.

1098. Panicum scoparium Lam. - Lead City, July 9.

1099. Panicum dichotomum L. var villosum (Ell.) Vasey. - Bull Springs, July 27.

1100. Panicum depauperatum Muhl. - Lead City, July 4; Custer, July 18.

1101. Panicum crus galli L. var. - Low and smoth form. - Hot Springs, June 13.

1102. Setaria viridis Beauv. var. - Bristles more than usually long, generally purple. - Minnekahta/ August 4.

1103. Spartina cynocuroides Willd. - Custer, July 16.

1209. Beckmannia erucaeformis Host. - Custer, July 16.

1104. Andropogon provincialis Lem. - Minnekahta, August 5.

1105. Andropogon scoparius Mich. var. - It is the same wholly smoth form that I collected in Western Nebraska. - Minnekahta, August 5.

1106. Phalaris arundinacea L. - Buffalo Gap, June 21.

1107. Hierochloe borealis R.& S. - Prindle, August6.

1108. Alopecurus aristulatus Torr. - Elk Canon, June 29; Rockford, July 11; Custer, July 16.

1109. Phleum pratense L. - Lead City, July 9.

1110. Stipa spartea Trin. - Custer, August 16.

1111. Stipa comata Trin. & Rupr. - Custer, August 16.

1112. Stipa viridula Trin. - Hot Springs, August 3.

1113. Stipa Richardsonii n. sp. - - It agrees best with the description of S. eminens, both in Bot. of Cal. and in Trin. & Rup. Stipaceae, but the nodes are wholly glabrous and the awn not deciduous. There is only one specimen in the Herb. U. of N. under this name. Although this comes from the Nat. Herb. , I do not beleive it belongs to S. eminens but to S. setigera, the other specimens

of which it resembles. My specimens resembles somewhat S. avenacea but the leaves are broader, longer and stiffer, the branches more capillary, the empty glumes decidedly unequal, and both 3-nerved. I thought also, it might be S. flexuosa Vasey, the description of which ,in Dr. Vasey's monograph fits, except to the length of the awn; but it does not fully agree with the description norwith the plate in the Grasses of the Soth, especially not with that of the awn. Believing it to be an undescribed species, I give the following description: Richardsonii

STIPA ~~MICRO-MONTANA~~ n. sp.(Named from the Black Hills.) Culm tufted from a short rootstock, slender, 2-3 feet high, perfectly smoth; rott leaves 6-10 inches long stif, involute, from a broad lose sheath, minutely scabrous; panicle of long, 4-6 in., slender, flexuose, somewhat scabrous , capillary branches, which are generally in pairs, at the end branching, and bearing a few spikelets on pedicels 1/4-¾1 inch long ; outer glumes ovate, mebranaceous, above hualine and pointed, unequal, both 3-nerved and purplish below, when young; flowering glumes only 2 lines long, black when mature,all over white hairy; awn about 1 inch long, bent at the midl , lower half twisted, but only one way, slightly hairy.
Rochford, July 12; Custer, August 19.

1114. Oryzopsis asperifolia Mich. - Both this and the next not given in Coulter's Manual. - Sylvan Lake, June 8.

1115. Oryzopsis cunudensis Torr. - Sylvan Lake, June 8.

1116. Oryzopsis micrantha Thurber. - Elk Canon; June 20.

1117. Oryzopsis cuspidata Benth. - Hot Springs, June 13.

1118. Aristida purpurea Nutt. var. - It is the same form as I in my Nebraska Collection named var. hookri. - Custer, August 16

1119. Aristida purpurea Nutt. var. Fendleriana (Steud.) Vasey. Only one tuft found at Hot Springs, August 3.

1120. Muhlenbergia glomerata Trin. - French Creek, July 22.

1121. Muhlenbergia wrightii Vasey (?). - It may be a variety of the forgoing, but the glumes are tipped with an awn and the leaves are more or less involute. - Custer, August 1.

1122.Sporobulus cryptandrus Gray. - Hot Springs, August 10.

1123. Sporobulus heteropsis Gray. - Pringle, August 5.

1124. Agrostis alba L. - Custer, August 1.

1125. Agrostis exarrata Trin. - Hot Springs, August 10.

1126. Agrostis hiemalis (Walt.) Britt. - Cornucopiae hyemale was described by Walter in Flora Caroliniana, in 1788, Agrostis scabra Willd. first in 1797. - Custer, July 16.

1127. Calamagrostis canadensis Beauv. var. - Very week and slender; leaves flat. - Custer, August 16.

1128. Calamagrostis canadensis Beauv. (?) var.- The flowers seem to agree with those of C. canadensis, but the leaves are involute as in C. robusta, and the stem is very strict. - Hot Springs, August 10.

ll 1129.Calamagrostis robusta Vasey. - Hot Springs, June 16 & August 3.

1130. Calamagrostis silvatica var. americana.(?) - It seems to agree with the description of this; but I think that it is distinct from C. silvatica of Europe. Only Europea specimens of C. silvatica are in the Herb. U. of N. It may be also a form of C. tweedii; but it has narrower, somewhat involute leaves. - Rochford, July 11.

1131. Calamagrostis longifolia Hook. - Hot Springs, August 9.

1132. Avena striata Michx. - Elk Canon, June 30; Custer, July 16.

1133. Danthonia spicata Beauv. (?) - Rochford, July 12; Custer, August 16.

1134. Schedonardus texanus Steud. - Hot Springs, June 19.

1135. Bouteloua hirsuta Lag. - Hot Springs, June 19.

1136. Bouteloua oligostachya Torr. - Hot Springs, June 19.

1137. Bouteloua racemosa Lag. - Hot Springs, June 19.

1138. Buchloe dactyloides Eng. - Hot Springs, June 13; Custer, July 18.

1139. Koeleria cristata Pers. - Hot Springs, June 18; Elk Canon, June 30; Lead City, July 9; Rochford, July 12.

1140. Eatonia pensylvanica Gray. - Hot Springs, June 15.

1141 Catabrosa aquatica Beauv. - Pringle, August 5.

1142. Eragrostis major Host. - Hot Springs, August 9.

1147. Dactylis glomerata L. - Hot Springs, June 15.

1144. Poa (Californica Vasey.)- The species belonging to the "Bunch Grass" section of Poa need very well a revision, which may-be would bring out perhaps half a dozen species. P. californica Vasey, andina Nutt, tenuifolia Nutt, pringlii Scribner,and nevadensis seem to be regarded as distinct. May be there are several more, and maybe there are only two (or one) extremely variable species. In Coulter's Manual P. californica Vasey and P. andina Nutt are regarded as the same:; but from the description and plate in Cassidy's Colorado Grasses, and from a Nebraska specimen in the Herb. U. of N. ,identified by,Dr Vasey; I conclude that it is a smaller, although related species, being between P. californica Vasey and P. alpina L. There are three specimens in the Herb. U. of N., belonging to the same species as my No. 1144., named respectively, P. californica Vasey, P. californica Thurber, and P. andina Nutt. . Only the first can be used, and should be used untill another is given. Thurber never named it POA californica, and P. andina Nutt is, as I understand it, another plant. Even if they are only one species, it can not be used. The species has already to many names, but still need a new one, for the follwing reasons:
1) Both Scleroclea californica Munro and Poa andina Nutt are "nomina nuda".
2)

Larger spikelet lacking cottoned at the base of the flowing glumes the long and acute ligule and the longer and broader leaves

From P. pratensis this differs by its longer and acute ligule

Spikelets larger, glumes ~~[illegible]~~ not so strongly compressed & ~~[illegible]~~ with ~~a~~ broader scarious margins, ~~[illegible]~~

From alpina it differs by its larger size, long creeping rootstock long acute ligule, & empty glumes not conspicuously crested on the keels

Rich. Mon. Pan. Aen. +
Aeritum Tuber. 22 (1830)

2) Poa californica is preoccupied. - Oe year after Munroe discovered his Scle rocloa californica, a Poa californica was desribed by Steudel. When transferring Scleroclоa californica to Poa, P. œ californica could, therefor, not be used, even if Steudel's name now only is a synonym under anothr species in the same genus.

3) Poa andina is also preoccupied. A species from the Chilian andes was described under that name by Trinnius.

So much perplexity has been and still exsist, that it would be best to have both renamed, so that the names would hold. If Festuca fendleriana described in Steudel is the same as Scleroclоa californica/ and Poa fendleriana is not preoccupied, the latter should be the name. If no valid name can be found, I would propose for this Poa munroana, and for Poa andina Nutt, Poa Nuttallii. I do not favor specific names formed from personal names; but, her, where so much of perplexity exists , the names would tell the history. - - ~~Minnekahta, August 5.~~ -- Pringle, August 5.

1145. Poa (californica Vasey.) (?) var. Like the last, but the leaves broader, flat; flowers greenish, instead of purplish. - - Hot Springs, June 13.

1146. Poa tenuifolia Nutt. - Elk Canon, June 29; Hot Springs, August 3.

1147. Poa SP. . . . . One of the bunch grasses, in general habit resembling a little Festuca ovina. Densely tufted, 6-12 in. high, scabrous; leaves 1-3 inches long, very narrow, scarcely one line wide, at first flat but soon involute, scabrous; those of the stem similar, but shorter; panicle 2-3 inches, narrow, branches short and upright; spikelets 2-3 lines long, 3-4 flowered; empty glumes carinate, but flowering glumes round on the back, more or less purplish, puberulent, obtuse, scarious margined and erose. It resembles P. tenuifolia, of which it may be a forf, but differs in the size of the plant, the narrow, scabrous leaves, the smaller, more rounded spikelets and the broader glumes. - It may be also a large form of P. pringlii Scribner. - Hot Springs, June 13.

1148. Poa nevadensis Vasey. It agrees well with the description of this species, and with the specimens in the Herb. U. of N. distributed by the Nat. Herb, which specimens were grown from seeds from Oregon. - Custer, July 16.

1149. Poa nevadensis Vasey var. robusta. - Growing together with the preceding, but easily distinguished. Robust; panicle dense, 4-6 inches long and nearly one inch thick; spikelets large, 5-8 flowered, nerly 1/2 inch long, short peduncled, some nearly sessile.- Custer, July 16.

1150. Poa annua L. Elk Canon, June 29.

1151. Poa alpina L. - Very variable. - Hot Springs, June 13.

1152. Poa alpina L. var. - A tall form with large panicle and broad leaves, growing near water. - Custer, July 16.

1153. Poa . . . . . Slender, low, 6-12 in., fron a tufted rootstock; root leaves narrow, 1-3 inches long, 1/2 line wide, more or less involute; stem leaves few, 1-3, shorter (about inch or less) and broader; ligules short and truncate; panicle ovate, short, 1 1/2-3 in. long, with rays mostly in threes to fives, about inch long; spikelets 1-1 1/2 line long, 3-4 flowered, glumes pupplish towards the scarious margin, nerved, and woollyon midrib and

margine below the middle. It seems to be near P. alpina, laxa and caesia, but differs from the first in its narrow leaves and slender stem , and in its smaller and less villos glumes, and from the other two in its broad panicle. It may also be a form of P. pratensis, which it resembles in its long running rootstock. - Lead City, July 6.

1154. Poa laxa Haenke. (?) - There are no specimens in the Hreb. U. of N. Only 2 specimens secured, June 4, at Custer.

1155. Poa caesia Smith. var. - It seems to be very near P. caesia var. stricta, collected by Horsford in Vermont and P. caesia collected by Rusby in Arizona, both distributed by the U.S.Dep.Ag. but it is evidently not related to P. nemoralis of Europe. From the above mentioned, it differs in having a short, spreading panicle. - Hot Springs, June 14.

1156. Poa pratensis L. var. - Tall, 2-3 ft., leaves broad, even the stem leaves 6-8 inches long and 3 lines wide; spikelets 3-4 lines long. - Hot Springs, June 13.

1157. Poa pratensis L. var. - A tall form with contracted panicle in the manner of P. serotina, but stoloniferous and with short ligules, some sheaths roughened. - Elk Canon, June 30.

1158. Poa serotina Ehr. - In may specimens the ligules are short, but in this respect as in all others, they agree with C.C. Perry's specimens fron Colorado. - P. serotina of King's Expedition had occording to Watson also short ligules. - Lead City, July 6; Custer, August 1.

1159. Poa serotina Ehr var. - It seems to be intermediate between P. serotina and P. alsodes. It has the large panicle and many branches of the former, but the slender growth, the small and light green spikelets of the latter. Most of the specimens are only 8-12 inches high, approaching in that respect P. caesia, from which it is distinguished by glumes that have scarselyany wool on the keel and the margin. - Rapid City, June 25.

1160. Poa alsodes - Lead City, July 6.

1161. Glyceria nervata Trin. - Whitewood, July 7.

1163. Glyceria arundinacea Kunth. - Custer, July 16.

1164 Festuca ovina L. var. (nera brevifolia Wats.) - The panicle is broader than in that variety. - Lead City? July 4.

1165. Bromus kalmii Gray. Lead City, July 4; Rockford, July 12; Hot Springs, August 8.

1166. Bromus ciliatus L. - Rockford, July 12.

1167. Bromus pumpillianus Scribner. - Elk Canon, June 30; Rockford, July 12; Custer, July 16.

1168. Agropyrum glaucum Vasey. - Deadwood, July 5.

1169. Agropyrum glaucum Vasey var. - Robust, 3-3 1/2 feet , with large, many flowered spikelets, nearly inch long. Only 3 specimens: Hot Springs, August 8.

1170. Agropyrum tenerum Vasey. - Deadwood, July 5.

1171. Agropyrum tenerum Vasey var. - Tall, 3-4 feet, robust; spike 8-12 inches long of large distant spikelets with awns 1/2-1 inch long. - Rochford, July 12.

1172 Agropyrum unilaterale V. & S. - Lead City, July 6; Custer, July 16 & August 16; Hot Springs, August 3.

1173. Elymus canadensis L. - Hot Springs, Hot Springs, August 9

1174. Elymus canadensis L. var. glaucifolius Gray. - Hot Sprin August 9.

1175. Elymus virginicus L. - Hot Springs, August 9.

1176. Elymus stiatus Willd. - Hot Springs, August 9.

1177. Elymus sitanion Schultes. -/ Hot Springs, June 13 Aug. 9

1178. Elymus mollis Trin. - Elk Canon, near Runkels, June 30.

1179. Hordeum jubatum L. - Custer, July 16.

CONIFERAE.

1180. Juniperus communis L. var.) - Custer, June 4.

1181. Juniperus sabina L. var. procumbens Pursh. - Hermosa, June 23; Piedmont, June 27.

1182. Juniperus virginiana L. Very rare in the hills proper. Only two shrubs on the Buck horn MT. , near Custer, Jun2 4; - Hot Springs, June 15.

1183. Pinus ponderosa Dougl. var. scopulorum Eng. - Common throug out the Black Hills. - Hot Springs/ June 17.

1104. Picea alba. Not uncommon in the higher hills. I did not secure any flowers. Fruit: Rochford, July 12.

SLAGINELLAE.

1184. Selaginella rupestris Spring. - Custer, June 6.

LYCOPODIACEAE.

1185. Lycopodium obscurum L. var dendroideum Michx. - Elk Canon, June 29.

OPHIOGLOSSACEAE.

1186. Botrychium boreale Milde. - Plant 6-9 inches, sterile portion sessile, above the middle of the plant, ovate oblong, pinnately divided in rounded rhomboid fleshy, acutish divisions. It seems to agree fully with the descriptions of B. boreale in Milde's Filces Europae et Atlantidis, and in Hartman's Scandinaviens Flora. From the description in Eaton's Firns of North America, it differs only in the length of the sterile frond, which in some specimens is more elongated and the divisions crowded. Neither is given as a specific characterin Milde, nor in Hartman. I found only two specimens, but some were found also by Prof. Woods and one of the students of the University of Nebraska. All agree in having the sterile frond sessile and the lobes acutish, which characters separates it from B. matricariaefolium. One specimen is a fac simile of the plat of B. boreale in Eaton's Ferns. - Custer, August 15

POLYPODIACEAE.

1187. Plypodium vulgare L. Custer, July 18.

1188. Polypodium vulgare L. var. Rotundatum Milde. - Differs from the last by its short fronds with rounded lobes. - Custer, August 16. Wheeler 992, Watson 1307.

1189. Cheilathes lanuginosa Nutt. - Hot Springs, June 14.

1190. Pellaea atropurpurea Link. - Hot Springs, June 14.

1191. Pellaea . . . . . It seems to agree with the description of P. breweri, but the fronds are desidedly coriaceous. I thought, at first, that it was a form of P. atropurpurea, but th rachis is brightly brown, not purplish black, and without scales. They are brittle and, when old show the depressions that makes them look as if articulated, which are mentioned by Eaton in his Ferns oa North America as characterizing P. breweri./The fronds are 2-4 inches high from a tufted, thick rootstock, once pinnate; of from 5-9 pinnae; pinnae sessile, ovate, about 1/2 inch long, oval or ovate, entire, or seldom with a small lobe on the upper side. It was growing in cracks of exposed lime stome rocks, diffeing from P. atropurpurea in selecting the sunniest side of the rock. - Near Bull Springs, July 27.

1192. Pteris aquelina L. - Custer, August 19.

1193. Asplenium trichomanes L. - Sylvan Lake, August 18.

1194. Asplenium septemtrionale Hoffm. - Custer, June 5 & Aug.16

1195. Asplenium Flix-foemina Bernh. - Sylvan Lake, July 20.

1196. Phegopteris dryopteris Fee. - Custer, August 19.

1197. Aspidium filix-mas L. - Rockford, July 12; Custer, July 16

1198. Cystopteris fragilis Bernh. - Little Elk, June 27; Lead City, July 6; Custer, August 15.

1199. Woodsia oregana Eaton. - Hermosa, June 28; Elk Canon, June 29; Custer, August 10.

1200. Woodsia scopulina Eaton. - Custer, August 10.

EQUISETACEAE.

1201. Equisetum arvenseL. - Sylvan Lake, June 18.

1202. Equisetum pratense Ehr. - Sylvan Lake, June 8.

1204 Equisetum limosum L. (?) var. This is the same as distributed in my Western Nebraska collection under the same name. The name was not corrected by the Dep. Ag. I believe, however, that it should rather be referred to E. robustum. - Elk Canon, June 24.

1204. Equisetum laevigatum Brown - Unusually large specimens? - Hot Springs, August 3.

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